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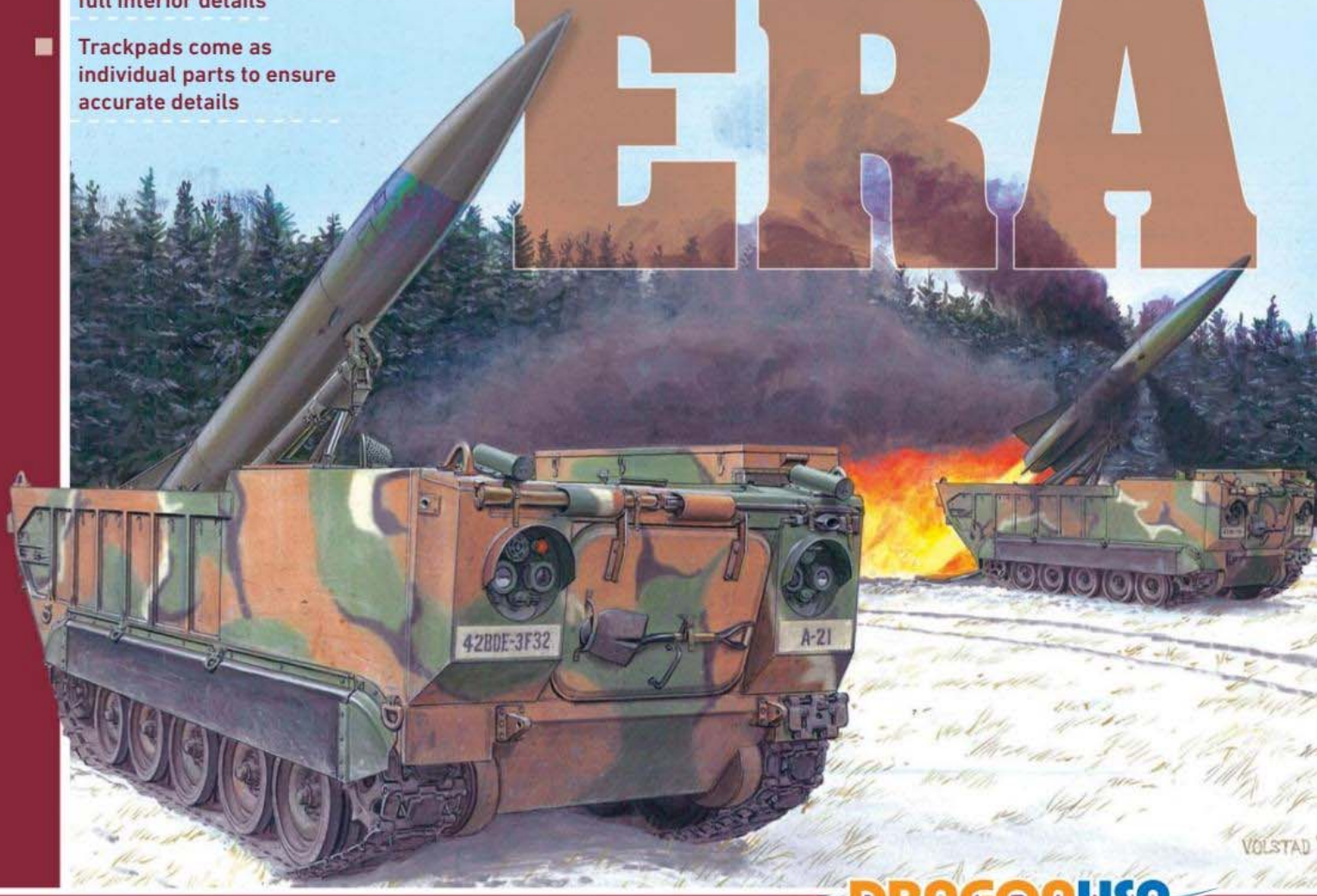

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May 2017 /// Vol. 35 /// No. 5

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By Aaron Skinner

Modeling is built on imagination

A long time ago, at a kitchen table not so far away (although the unrelenting smog of time greatens the distance!), an 8-year-old boy cut and glued his way through MPC's *Star Wars* X-wing.

Sticky fingers, globby paint, and gaping seams meant nothing. Instead, each part advanced the fantasy that he was Luke Skywalker flying over the Death Star. That junior modeler was able to touch the starfighter from the movie he loved and relive the joy he felt in the theater.

He is — that is, I am — still doing that today. As hard as it is for me to believe I'm 40 years older, it's extraordinary to think that *Star Wars*, George Lucas' epic space fantasy, has delighted audiences young and old since May 25, 1977.

It's impossible to overestimate the role *Star Wars* played in my development as a modeler. I'd built a few models before the summer of '77, mostly Matchbox and Airfix aircraft and tanks with help from my parents. I enjoyed the process, mostly for the finished objects that remained complete for a few days before succumbing to the rigors of play.

Within months of seeing *Star Wars*, I had all four MPC kits I could find in the J.C. Penney Co.'s toy section. The X-wing and R2-D2 didn't survive a trans-Pacific journey, but Darth Vader's TIE fighter and C-3PO graced shelves in my bedroom for years. Building them reinforced my affection for the movie and cemented modeling as my primary hobby.

... there was a time when it was a single two-hour film ...

My interests broadened over the years to include aircraft, tanks, ships, and cars, but science fiction, especially *Star Wars*, has always been present. Talking to builders of my generation often reveals a similar story. They may not build sci-fi now, but they did when the movie came out.

Today, the franchise (there was a time when it was a single two-hour film that you had to watch at the theater!) is omnipresent with TV series and new movies coming for the next several years. For hardware geeks like me, that means new vehicles, droids, and characters to build — new ways to connect with the films' thrill.

FSM marks *Star Wars*' 40th anniversary with two stories. I return to the subject that kicked off my habit and show improvements for the Revell (née FineMolds) X-wing. Then, master modeler Sean Lynch turns his armor-finishing techniques loose on Bandai's AT-ST.

Enjoy the out-of-this-world modeling, and may the Force be with you!

Off the sprue: What's your favorite movie snack?

Editor
Mark Savage
msavage@Kalmbach.com

I'm old and traditional on this. I want hot, buttered popcorn, but would never turn down some peanut M&Ms.

Senior Editor
Aaron Skinner
askinner@FineScale.com

There's nothing better than tucking into baby back ribs dripping with sauce in the theater's darkness, but I'll settle for popcorn in a pinch.

Associate Editor
Mark Hembree
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I don't snack during a good movie. If it's a bad movie, I might go make a sandwich and read something instead.

Assistant Editor
Elizabeth Nash
enash@FineScale.com

Sweet, chocolatey nonpareil Sno-Caps eaten concurrently with salty, buttery popcorn.

Editorial Associate
Monica Freitag
mfreitag@FineScale.com

Buttered popcorn, of course, with a Cherry Pepsi (or Coke) and box of Junior Mints.

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Watch what you say

I totally agree with Mr. Cox's letter in the March Scale Talk about keeping our negative comments to ourselves.

I started really building models when I was 11 — back when kits were 99 cents. I entered a contest at the age of 13. I was within earshot of the judges and everything they said was negative!

I almost gave up building after that. Instead, I persisted and have enjoyed the hobby for more than 40 years.

Remember, what is said can make or break what kids decide to do.

– Jeff McIntyre
Sparks, Nev.

In the eye of the modeler

The "Artistry vs. Accuracy" article by Karl Logan in the February issue struck a nerve with me. I am always troubled when I read a letter or hear a comment that criticizes a model because of any finishing technique or lack of a technique.

I was a U.S. Marine infantryman, exposed to armor, artillery, and various aircraft aboard several carriers during my six years on active duty. My favorite ship was the beloved USS *Ranger*, CVA-61 (later CV-61). I will tell you this: Our CAG and CO would not have allowed our fighters and attack aircraft to have been "heavily weathered."

Our crew chiefs took amazing pride in keeping our birds extremely clean and shiny. I have many photos showing them in this great condition, and that is how I model them in 1/48 and 1/32 scale.

On other carriers I was aboard, not as much attention was paid to that level of "beauty," and aircraft showed more wear and tear. So, more weathering would be appropriate on a finished model.

Our armor was clean when it went out, filthy when it came in. It all depends on the timing.

So, beauty truly is in the eye of the beholder. Build it the way you see it and want it on your shelf. It won't be wrong.

Let's all enjoy each other's work, and try to get along and be kind. Maybe then more modelers will show their work.

– Alfred O'Daire
Jarratt, Va.

Inspiration from both sides

I was glad to read Karl Logan's article in the February issue. I am a vet and one of those who was a part of the discussion on the forum he refers to. It was a great piece, but I think Karl's insinuation that to a vet *realistic* means *clean* could be misleading.

To me, especially as a diorama builder, realistic means appropriate for the scene it is set in. That could include mud, dirt, dented fenders, chips, and yes, even rust (especially with armor — the only time it is spotless is just after it has been painted!).

But as a "realistic" modeler, I have learned a lot from the "artistic" group, such as using dot filtering that we realists can use to get a realistic result.

Ultimately, we need to remember this is a hobby and it should be fun. However you enjoy it, whether it be getting every last rivet correct or creating a new work of art, it should be up to you. Others should respect that.

There are extremists in both camps: realists who insist a build should look like this or that or you shouldn't be doing it a certain way, and artists who constantly

Workshop pics

Do what you like ...

Here is my workshop. I got back into modeling in 1985.

I don't build any particular type of model — basically, if I like it I build it!

– Craig Sirois
Sherwood Park, Alberta, Canada

Subterranean paradise

Here are pictures of my shop. I've tried to make it as comfy as possible, even though it's a basement shop.

I have a Dayton 475 CFM blower on the spray booth and I finally organized all my spare parts. It's taken years to outfit the shop with every convenience.

– Gary Kosowan
Sundridge, Ontario, Canada

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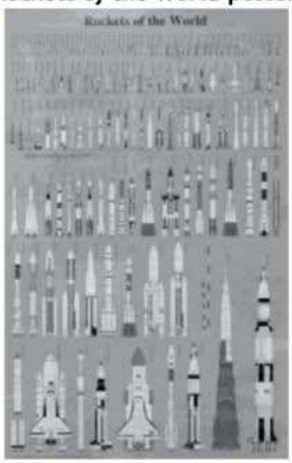

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throw around the rivet-counter insults and tell everyone they should modulate their paint shades.

We can live with each other, admire each other's work, and even learn from each other.

There are two modelers in particular I owe a lot to: Bill Plunk and Karl Logan. Using different methods, they have taught me a lot. And they have both inspired me to keep working at it.

– Martin Bishop (aka: Bish)
Bury St Edmunds, Suffolk, England

Building with a purpose

I model 1/72 scale aircraft almost exclusively but now want to get into armor. So, I read with interest all the articles on tanks. Put me firmly in the "accuracy" camp. I will not build a plane unless I am working from a photo of the subject. Maybe that's me being OCD, but that's just the way I like it.

While I do pre-shade and use pinwashes and pastels, I believe the armor techniques have gotten so involved and artsy that the work is almost a caricature of the real thing. I must admit that some of the techniques are amazing. However, they are overdone and somewhat unrealistic.

For example, in the February article, "Modeling then and now," the "new school" finishing of the StuG IIIG resembles photos I have seen of vehicles stored outside at Aberdeen Proving Ground for 50 years or so. I don't think I have seen the kind of wear and tear depicted with the newer techniques on the right side of the StuG IIIG in any wartime photo. I am sure a few could be found, but not many. Yes, these are combat vehicles, but as such their lifespans were short. Maybe that kind of chipping could apply to a vehicle in action for 10 years, but they didn't hang around that long.

On the other hand, the Shep Paine school of thought is probably a little too pristine. I would prefer a combination of the two without the excess paint chipping. I admire his considerable technique, but I think the work of Bill Plunk is more accurate and not so artistic.

When I build a model, I do so to pay homage to those who fought and sacrificed. Thus, I feel it my duty to faithfully reproduce their aircraft/AFV with as much accuracy as possible.

– Steve Merolla
Johnston, R.I.

Heavy-handed weathering

Regarding the "Modeling then and now" article in the February issue, I have to say that I preferred the "Shep Paine" side.

Some weathering is fine. But I don't want my models looking like they have been sitting in the neglected backyard of a museum for the last 70 years, which is the result of the "artistic" approach.

I worked with real military vehicles that had not been painted in years, and the chipping was not as severe as your StuG, which had probably only been in service a few months.

I subscribed to *FSM* years ago then let my subscription lapse as I was lured away by the European glossies. I have come back to *FSM* as the models in the glossies became increasingly uninteresting. It was as if the modelers competed to see who could use the most weathering products on each model, to the point where the finished products looked more like 1/1 scale dirt — not 1/35 scale.

– Ken Brown
Ottawa, Ontario, Canada

More ships, please

Thank you for including the Manitowoc Maritime Museum Midwestern Model Ships & Boats Contest in your December 2016 issue.

I have been a plastic modeler most of my life — at least 50 years — and never really stopped … that is, until I discovered wooden model shipbuilding.

Granted, there is a huge difference between assembling parts from a sprue and making them look like the real thing compared to opening a box containing several different sizes of wood and some blueprints. Wooden shipbuilders have to make every single part, including brass pieces. There is no gluing A to B and assembly A/B to C. I'm not belittling plastic modelers, just pointing out the differences.

Members of the club I belong to built several of the ships you featured. I cannot emphasize strongly enough the benefits of joining a modeling club. Without the knowledge I gained from club membership, I would not have won gold, silver, and bronze awards from local model contests.

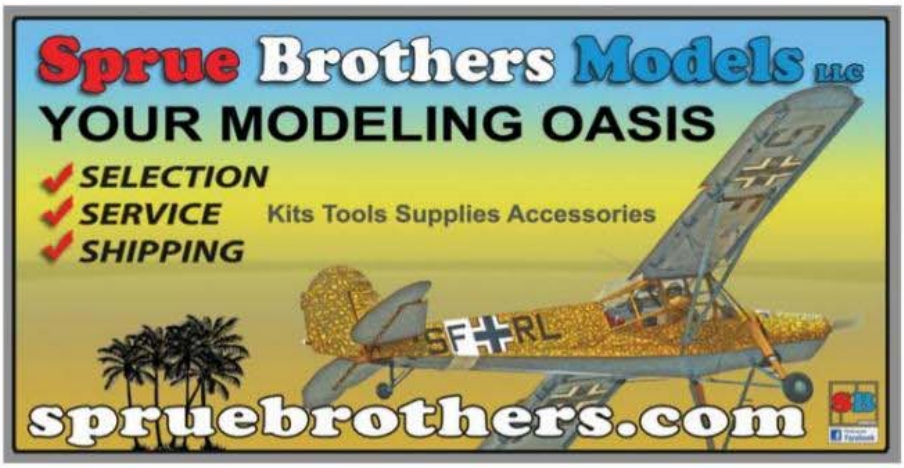
Your magazine would do itself proud to include wooden shipbuilding more often.

– Glenn Estry
Arlington Heights, Ill.

Corrections

In the February article, "Living in a Yellow Submarine," it is Jeremy the "Nowhere Man" featured onboard, not the Chief Blue Meanie.

In the March Reader Gallery, the airplane built by John Carr Sr. of San Jose, Calif., was a Nieuport 28. **FSM**



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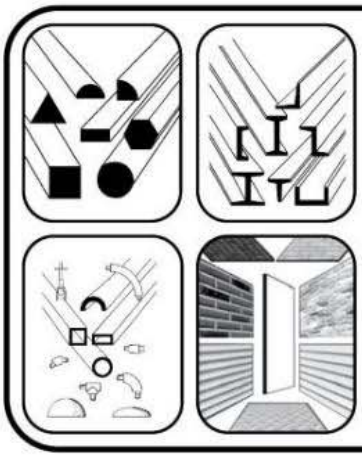

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Spotlight

New acrylic paints from Mission Models

Plunging into a crowded field, Mission Models (www.missionmodelsus.com) has introduced a range of acrylic paint. The company's initial release includes more than 50 colors and are mostly armor camouflage and weathering shades, but aircraft colors are coming. The catalog also includes primer in six shades, thinner/reducer, and a polyurethane additive.

The paints can be airbrushed straight from the bottle at 10-15 psi but perform better thinned 20-30%. Adding the polyurethane mix further improves paint flow for a smooth, durable finish. We'll be doing a full review in an upcoming issue, but a quick test revealed that the paints airbrush nicely, laying down thin coats and covering well. We tried them straight from the bottle, with just thinner, and with thinner and the polyurethane additive. Each produced smooth, even color both on primer and bare plastic. The paints are available in 1-ounce bottle for $5.75; the polyurethane mix and thinner in 2-ounce bottle for $8.45. The thinner is also availble in a 4-ounce bottle for $9.75. www.missionmodelsus.com

AIRCRAFT KITS

1/32 SCALE

UH-72A Lakota personnel & material transport version from Revell, No. 04927, $35.95.

Me262 B-1/U-1 night fighter from Revell, No. 04995, $31.95. Look for a detailed review in an upcoming issue of *FSM*.

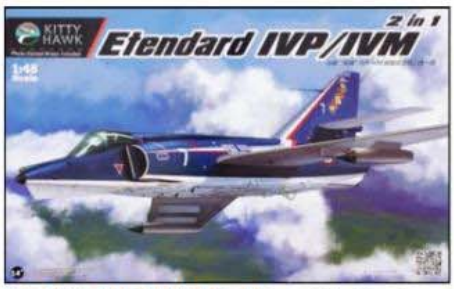
1/48 SCALE

WAH-64D Apache 'British Army Air Corps' from Hasegawa/Hobbico, No. 07445, $74.99.

North American P-51D Mustang from Meng Models, No. LS-006, $50.99. Look for a detailed review in an upcoming issue of *FSM*.

Polikarpov I-16 Type 24 from ICM, No. 48097, $29.99. Look for a detailed review in an upcoming issue of *FSM*.

Sukhoi Su-17 M3/M4 "Fitter-K" from Kitty Hawk, No. KH80144, $99.95. Look for a detailed review in an upcoming issue of *FSM*.



Etendard IVP/IVM 2 in 1 from Kitty Hawk, No. KH80137, $79.95.

1/50 SCALE

Primary & Secondary & Soarer Glider from Hasegawa, No. SP349, $51.99. 3 kits included.

1/72 SCALE

JASDF T-2 CCV Air Development & Test Wing from Platz, No. AC-19 2800, $25.

JASDF T-33 from Platz, No. AC-202200, $19.50.

Sukhoi Su-27SM "Flanker-B" Russian air superiority fighter from Platz, No. AE-2 5600, $49.50. Zvezda parts.

He219 A-0-UHU WernerStreib from Platz, No. AE-3 4800, $42.75. Dragon parts.

F-4 C/D/J Phantom II Aces from Italeri, No. 1373, $24.99. Aviation Glory Aces.

1/144 SCALE

F-4E Phantom II US Air Force from Platz, No. FC-5 2400, $22. Flying Color Selection.

ARMOR KITS

1/35 SCALE

Land Rover Series III 109 Guardia Civil from Italeri, No. 6542, $21.99.

Soviet SU-101 SPA from Trumpeter, No. 09505, $64.99.

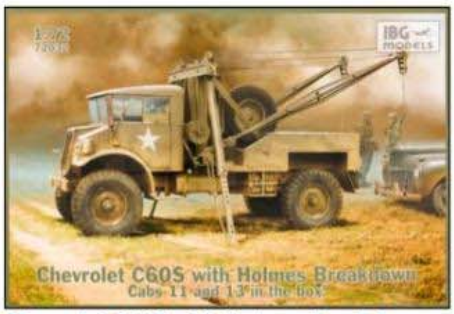
KTO Rosomak Polish APC from IBG Models, No. 35033, $80.99.

1/72 SCALE

T-55 A/AM from Revell, No. 03304, $9.95. Look for a detailed review in an upcoming issue of *FSM*.

Otter Light Reconnaissance car from IBG Models, No. 72031, $18.99.

Type 89 Japanese medium tank Kou gasoline early from IBG Models, No. 72037, $19.99.



Chevrolet C60S with Holmes Breakdown from IBG Models, No. 72032, $20.99. Cabs 11 and 13 in the box.

Stridsvagn M/39 Swedish light tank from IBG Models, No. 72034, $18.99.

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SHIP KITS

1/350 SCALE

***Dunkerque* French Navy battleship** from HobbyBoss, No. 86506, $136.99. Look for a detailed review in an upcoming issue of *FSM*.

1/450 SCALE

HMS *Victory* from Revell, No. 05819, $11.95.

1/700 SCALE

***Mikasa* Japanese Navy Battleship full hull special** from Hasegawa, No. CH120, $79.99. Look for a detailed review in an upcoming issue of *FSM*.

OTHER SCALE

German submarine U-boat type VIIC/IXC U-boat Aces Part 2 from Hasegawa, No. 30040, $34.99. 4 kits in one.

FIGURE KITS

1/16 SCALE

Tales from the Apocalypse — Day 1, 11:50am on freeway from Gecco Corp., $24.99. Series: The Heroine, No. 1, The Truck Driver No. 2, The Traffic Guard No. 3.

Tales from the Apocalypse — Day 1, 1:27pm at diner from Gecco Corp., $24.99. Series: The Cook, No. 4, The Waitress No. 5, The Biker No. 6.

1/20 SCALE

Maschinen Krieger 44 Type MK44 Ausf.B Hammerknight from Hasegawa, No. 64110, $74.99.

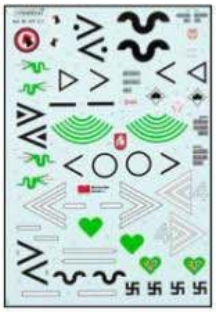
SHIP DETAILS

1/350 SCALE

Wooden deck for aircraft carrier *Junyo* from Hasegawa, No. 72166, $119.99.

AIRCRAFT DECALS

1/32 SCALE



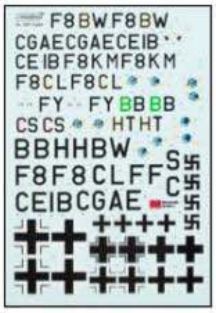
Messerschmitt Bf 109 Stab Part 2 from Xtradecal/Hannants, No. X320676, $8.50.

1/48 SCALE

Vickers Supermarine Walrus Collection from Xtradecal/Hannants, No. , $10.

Messerschmitt Bf 109 Stab Part 2 from Xtradecal/Hannants, No. X48173, $8.50.

1/72 SCALE



Focke-Wulf Fw 200 Condor (C-2, C-3, C-4, C-8) from Xtradecal/Hannants, No. X72262, $8.50.

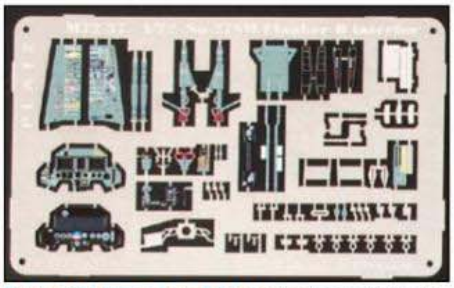
Su-27SM Flanker B masking sheet from Platz, No. M72-2, $8.

JG 5 from Xtradecal/Hannants, No. X72266, $8.50.

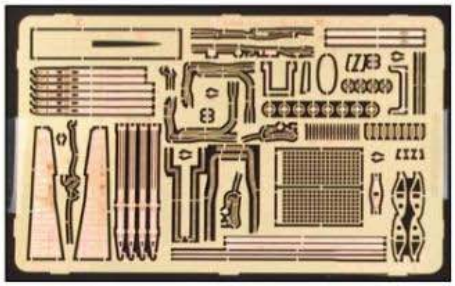
Messerschmitt Bf 109 Stab Part 2 from Xtradecal/Hannants, No. X72264, $8.50.

AIRCRAFT DETAILS

1/72 SCALE



Su-27SM "Flanker-B" interior from Platz, No. M72-37, $15.99.

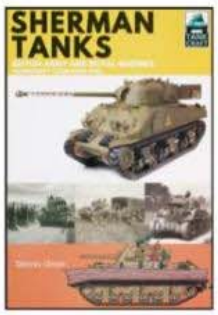


Su-27SM "Flanker-B" exterior from Platz, No. M72-38, $13.50.

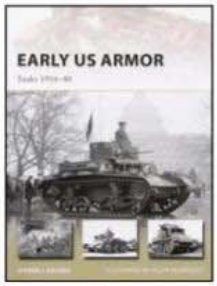
OTHER SCALE

Soviet fighter hanger set prints from Noy's Miniatures. Available in: 1/144 NM144028 $10.80; 1/72 NM7228 $14.90; 1/48 NM4828 $20/30; 1/32 NM3228 $65.10. Depicts maintenance hanger for Soviet fighter aircraft. Printed on quality card stock.

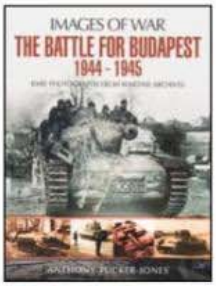
MEDIA



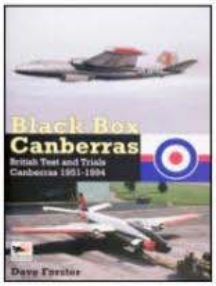
Sherman Tanks - British Army and Royal Marines Normandy Campaign 1944, $24.95, by Dennis Oliver, soft cover, 164 pages, all black-and-white photos, ISBN: 1473885302. From Pen & Sword Books Limited.



Early US Armor Tanks 1916-40, $18, by Steven J. Zaloga, soft cover, 48 pages, black-and-white photos, ISBN: 978-1-4728-1807-2. From Osprey Publishing.



The Battle for Budapest 1944-1945, $24.95, by Anthony Tucker-Jones, soft cover, 128 pages, black-and-white photos, ISBN: 1-4738-7732-6. From Osprey Publishing.

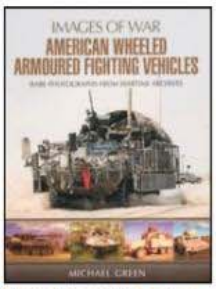


Black Box Canberras - British Test and Trials Canberras 1951-1994, $49.95, by David Forster, hard cover, 224 pages, over 250 black-and-white photos and drawings, ISBN: 978-1-9102109-53-4. From Specialty Press.

Soviet and Russian Military Aircraft in the Americas, $56.95, by Yefim Gordon & Dmitriy Komissarov, hard cover, 272 pages, over 550 black-and-white photos and drawings, ISBN: 978-1-902109-54-1. From Specialty Press.

The Modern Russian Army 1992-2016, $19, by Mark Galeotti illustrated by Johnny Shumate, soft cover, 64 pages, all color photos, ISBN: 978-1-4728-1908-6. From Osprey Publishing.

British Secret Projects 5 - Britain's Space Shuttle, $44.95, by Daniel Sharp, hard cover, 224 pages, over 200 B&W photos black and white photos, ISBN: 978-1-910809-02-0. From Specialty Press.



American Wheeled Armoured Fighting Vehicles, $24.95, by Michael Green, soft cover, 208 pages, both color and black-and-white photos, ISBN: 1473854369. From Pen & Sword Books Limited.

The RAF Air Sea Rescue Service in the Second World War, $24.95, soft cover, 135 pages, all black-and-white photos, ISBN: 1-4738-6130-6. From Osprey Publishing.

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For a directory of the manufacturers and distributors mentioned in *FSM*'s New Products, please visit www.finescale.com/Product Info

By Joe Hudson with Carissima Hudson

Painting tartans

Dressing a Highlander in stripes of color

Tartans intimidate many painters. But no matter the complexity, they comprise nothing more than horizontal and vertical lines of varying widths. Painting them involves deconstructing each layer in the pattern so it can be reconstructed with paint. I carefully study a pattern — I have several books on tartans — to determine the order in which the lines need to be painted.

After applying the base coat, I paint the first horizontal stripes in the pattern. As with all lines on tartans, I paint the initial line very thin, almost transparent to the eye. Once I am satisfied with the shape I paint over it, gradually deepening the line until the color density is correct. With all of the horizontal lines on, I paint the vertical lines.

Pay extra attention around folds and recesses. I find it easier to paint the lines in the recesses first. Then, I extend the line to the top of the fold.

I de-emphasize shadows and highlights because the underlying colors on most tartans are muted and the pattern largely conceals the shading.

I finished Mig Productions' 90mm Highlander (No. 1746) with several tartans worn by clans at the Battle of Culloden on April 16, 1746. That British victory ended the Jacobite uprising and sent Charles Edward Stuart back to France.

I pinned the resin figure's feet to attach it to a block for painting, and left the arms off for painting to reach under the sleeves. To ensure they fit perfectly at the end, I applied Aves Apoxie Sculpt putty to the shoulders as well as the point where the hand and sword met the torso. While the putty was wet, I brushed petroleum jelly on the arms, hand, and sword. Then I pressed the parts firmly together, removed excess putty with a knife, and smoothed the rest with a wet finger. I cooked the figure in a crockpot for a few minutes to speed-dry the putty. The petroleum jelly prevented the putty from sticking to one side of the join, so I could remove the parts for painting but be sure of a perfect seam.

All of the parts were primed with Tamiya light gray (XF-66). Paints used are Vallejo Model Color unless otherwise stated. **FSM**

Hair: *Paint the hair as a shape, rather than individual strands, so you can apply highlights and shadows for a 3-D effect. I started the Highlander's hair with a mix of burnt umber (70.941) and English uniform (70.921), layering shadows by adding progressively more black (70.950) to the base mix; the deepest shadows were pure black. To paint highlights, I mixed beige brown (70.875) and sand brown (70.876) into the base color.*

Eyes: *I started by brushing burnt umber over the entire socket, then carefully painted the white with sunny skintone (70.845). The pupil was painted dark brown (70.871). I usually paint eyes looking to one side for a lifelike appearance. This prevents the thousand-yard stare you can get when you paint the eyes looking straight ahead.*

Cuffs: *Over a base coat of Andrea Color Napoleonic green (NAC-10) with a little black, I applied shadows by adding increasing amounts of black to the base mix. For highlights, I added parched grass (70.610) to the base color in gradually increasing quantities; pure parched grass provided the final highlights.*

Flesh: *After a base coat of beige red (70.084) mixed with red leather (70.818), I added progressively brighter highlights in this order: the base mix with more beige red; straight beige red; a mix of beige red and basic skintone (70.815); and, finally, pure basic skintone. Shadows followed, starting with the base color mixed with more red leather. Then I added a little burnt umber to red leather to paint the deepest shadows. The nostrils and eyes were painted with the base mix plus cadmium maroon (70.859). I usually alternate painting highlights and shadows by layer, applying the initial highlight and shadow colors at the same time before moving to the next layer. This allows me to adjust the color while painting. A light coat of clear satin (70.522) gave the flesh a subtle sheen.*

Argyle socks: *Over gray blue (70.943), I painted stripes of Andrea Napoleonic red (NAC-34) and Japanese uniform (70.923). I applied Prussian blue (70.965) mixed with a little medium blue (70.963) to the ties holding them up; Prussian blue and black added shadows to the ties. Highlights on the ties are medium blue lightened with white.*

Hat: *The base coat was a mixture of Andrea Prussian blue and dark blue gray (70.867). I layered shadows with progressively more black added to the base color until I reached pure black. For highlights, I added medium blue to the base color. Over a foundation of deck tan (70.986) and German gray (70.995), I highlighted the cockade in layers: the base color with more deck tan; deck tan and off-white (70.820); off-white and ivory (70.918); and, finally, pure ivory. Adding layers of the base coat made progressively darker with German gray created the shadows.*

Neckerchief: *I painted the neckerchief with a mix of stone gray (70.884) and off-white, then applied highlights in layers lightened with more off-white. Shadows were built up with stone gray added to the base coat. German gray provided the deepest shadows.*

Coat: *To paint the tartan of the Farquharson clan, I started with a base mix of Andrea Napoleonic green and a tiny amount of black. The first horizontal and vertical stripes were painted with a mix of dark blue gray and a dab of Prussian blue. I outlined the blue lines with black. Inside each blue box, I painted stripes of Napoleonic red and Japanese uniform.*

Cuff trim: *The base color is a mix of equal parts Andrea Napoleonic red and Andrea basic red (NAC-33). I applied highlights in this order: base color mixed with vermillion (70.947); pure vermillion; and, finally, vermillion plus orange (70.851). It can be tricky to paint trim and avoid uneven lines: Lay the brush sideways and run it along the top of the detail, rather than using the tip.*

Vest: *For a tartan of the Clan MacDonnell of Keppoch, I mix a base coat from equal parts Andrea Napoleonic red and Andrea basic red. Shadows were mixed by adding progressively more Andrea Prussian blue (NAC-25) to the base; to paint highlights I added Napoleonic red to the base mixture. The tartan started with initial lining applied with a mix of the base vest color and light blue gray. The green overlaid stripes were a mix of Andrea Napoleonic green and grass green. A thin wash with Winsor & Newton indigo artist's oils blended the colors.*

Kilt: *To paint the tartan of Clan Stewart of Aping, I applied a base-coat mix of field blue (70.964) and a little Andrea Prussian blue. Shadows were introduced by adding progressively more black to the base color. I painted the first dark lines freehand, applying a mix of the base color and Andrea Napoleonic green. To keep a point on the brush, I dip the brush into water, then the paint, and then a bit of glaze medium. Before painting the line, I remove excess by swiping the brush on a paper towel. The medium keeps the paint flowing. It's a great trick to use on any detail work. I followed with Andrea Napoleonic red for the thin red stripes; the light blue stripes were a mix of the base blue with a little off-white.*

By Dave Koukol

Painting markings and printing decals

What to do when the decals you want aren't available

Unable to find decals for the low-visibility scheme worn by VF-111 "Sundowners" F-14s in the mid-1990s, Dave painted some of the markings and printed others.

For nearly two decades, a Monogram 1/48 scale F-14A languished half finished in my workshop. The stumbling block was want of decals to finish it as a VF-111 Tomcat. Unwilling to wait any longer, I determined to make the markings.

Originally, I intended to paint everything because previous decal-making attempts proved unsuccessful thanks to poor opacity and color matching. In the end, I combined paint and custom decals due to the difficulties involved in masking and painting over complex curves. But before making masks or decals, you need to create the images.

Into the digital realm

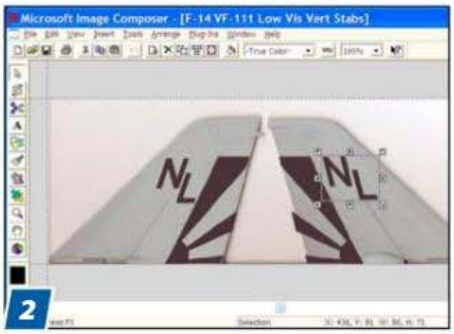
Start by making a digital two-dimensional copy of either the part itself or a scale drawing of it. Instruction sheets are often a good place for the latter. In the case of the Tomcat, I needed masks for the vertical stabilizers. So I placed the part in my flatbed scanner and created a full-size JPEG image to serve as a canvas, **1**.

Import the image into a graphics program such as Microsoft Image Composer or Adobe Photoshop, **2**. It serves as a scale reference when drawing the markings.

For my F-14, I imported the image of the vertical stabs into PowerPoint. Then I drew the Sundowners signature graphic on the rudders, using photos to check dimensions, and added the tail code — *NL* — using Long Beach, a font used for modern U.S. Navy markings that I bought online.

A tricky aspect of these Navy markings is getting the slant right on both sides of the plane. Normal italics work for characters on the left side of a subject, but not the right. While playing with Microsoft Image

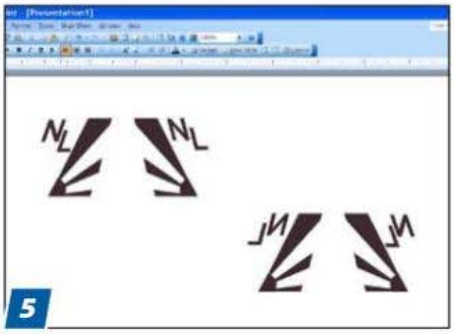
You can scan instructions, but I used the kit's vertical tails; it's hard to get more exact than that.



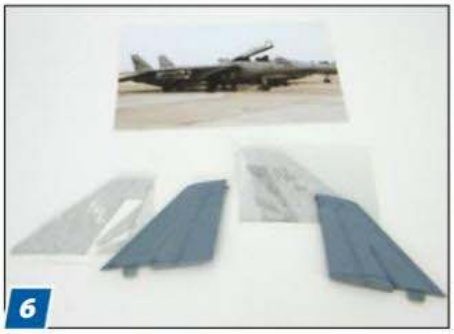
Working with Microsoft Image Composer, I drew the sun design on the rudders of the scanned tails.

Image Composer's warps can alter and skew text and images.

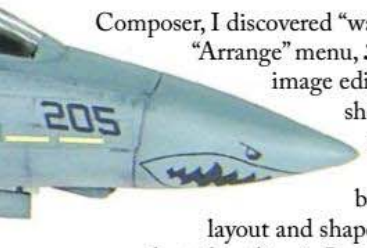
Once the objects are grouped, they can be resized and copied as one item.



Software makes it easy to flip the images to print on the paper side of frisket.



Tracing the designs through frisket with a knife was easy. Then I applied them to the tails.



Composer, I discovered "warp" on the "Arrange" menu, ***3***. Most robust image editing software should have a similar feature.

Once the basic tail-marking layout and shapes were laid out over the tail outline in Image Composer, I tied them together with the program's "group" function, ***4***.

Before moving to painting, it's important to check the scale of the work. I printed the image of the artwork and scanned stabilizer on plain paper and checked them against the kit's stabilizers. After measuring the base of the printed image against the part, I adjusted the size. I checked my work with another test on plain paper.

Making masks

Now the images need to be printed on frisket film to become a mask. Inkjet ink does not adhere to shiny plastic or vinyl; you need either specially-treated or porous surfaces. Play it safe and print the image on the frisket's paper backing.

To do that, make a mirror image of your scaled artwork by flipping it with the image-handling software, ***5***. I picked up Grafix low-tack .002-inch (.05mm) frisket film and printed the images on the backing using my Kodak inkjet printer with no problems whatsoever.

Using the masks

Using a new, keen hobby knife or scalpel, cut around the image. Then carefully place the frisket onto the parts to be painted and gently, but firmly, seal the edges, ***6***. Now you can airbrush or hand-paint the markings through the mask, ***7***.

After about 15 minutes, when the paint is touch-dry, remove the frisket, ***8***. Take care not to mar the fresh paint with fingers or stray frisket adhesive or edges. Touch up any blemishes with a fine brush.

A couple of days later, when the paint is fully cured, check for and remove any adhesive residue left by the frisket.

The type of paint used dictates the choice of solvent; rubbing alcohol is ideal, but may remove acrylic paints. I used warm, soapy water and low-tack tape to gently remove the residue.

Mach 2.4

Tomcat's top speed in level flight

– Jane's Encyclopedia of Aviation

Designing decals

No sooner had I finished painting the tail markings than I sat down at the bench with the Tomcat to apply the hodgepodge of markings assembled from various decal sheets. Much to my chagrin, I realized there were no aircraft numbers of the proper series — 200 and up — for the VF-111 birds in my reference photos. Also, the shark-mouth decals from an old Microscale sheet were too light, ***9***.

I scanned the pale mouth and created a JPEG image. Using Microsoft Image Composer, I adjusted the color. Aircraft numbers and the squadron designation were added to the file using the Long Beach font, ***10***.

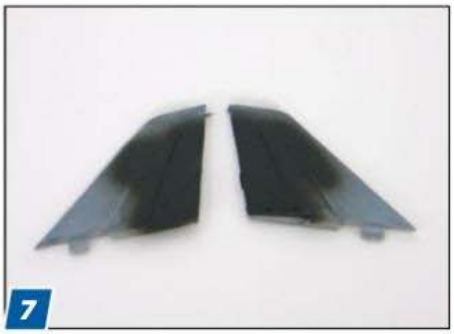
I imported the file to PowerPoint to scale and print it. To conserve decal paper, I set the paper size to 4 x 6 inches and printed a test on plain white paper.

I compared the original Microscale shark mouth and aircraft numbers on other 1/48 scale sheets, then adjusted the images to match. A second test confirmed proper scaling.

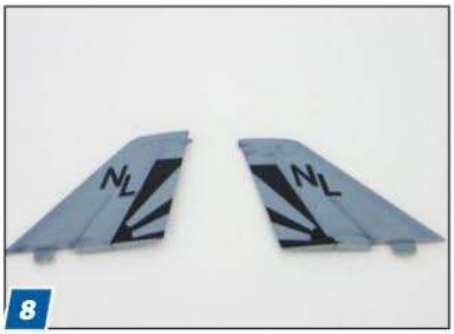
Printing the decals

Copying this set of images a few times on the same page better filled the page and gave me spares in the event of a torn or warped decal, ***11***.

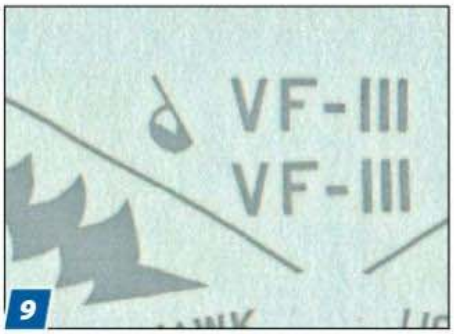
The moment of truth had arrived. I set the printer to highest quality and color, loaded it with photo paper, and ran a couple of test prints that turned out fine. I repeated the process with a 4 x 6-inch (10 x



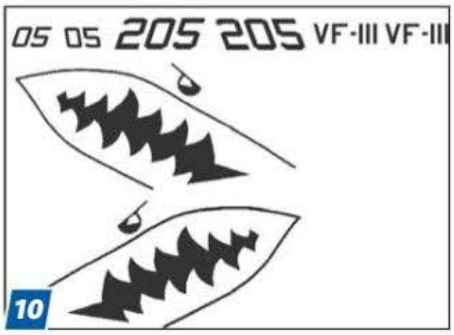
For the low-visibility markings on the Tomcat, I airbrushed GSI Creos gunship gray (H305).



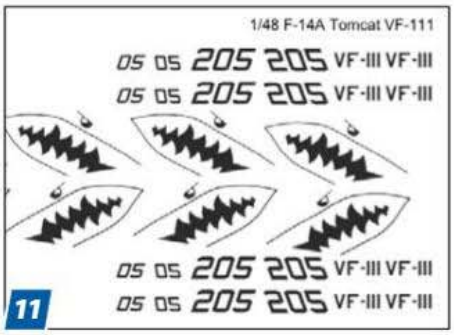
Looking good! Peeling up the masks revealed the Sundowners markings and a couple of places in need of touch-up.



Microscale's shark mouth looked too light, but the shapes were right. I scanned that part of the sheet.



After adjusting the color to match the other gunship gray markings on the Tomcat, I repositioned the eyes to match photos.



Preparing for possible problems, I replicated the markings several times to fill the 4 x 6-inch page.

I used Testors decal paper, but similar stuff is available from other manufacturers. Be sure to get the right kind for your printer.

Brushing Microscale Liquid Decal Film over the markings forms a continuous clear coat, so each marking will need to be closely trimmed before application.

With a little help from Micro Set and Micro Sol, my Tomcat bared its teeth.

What you'll need

Computer
Image-editing software
Digital flatbed scanner
Inkjet or laser printer
Grafix frisket film (low-tack, .002 inch)
Airbrush
Paint
Hobby knife
Ruler or scale
Clear decal paper
Microscale Liquid Decal Film
Microscale Micro Sol
Microscale Micro Set

15cm) piece of Testors clear inkjet decal paper, ***12***.

After a few minutes, I brushed Microscale Liquid Decal Film over the images to seal the ink and prevent it from running, ***13***. If you are concerned about the liquid film marring the ink, test it on an unneeded section first. A couple of hours later I applied on a second coat, then set the sheet aside.

Application

With custom decals, there's always a chance something will go awry. I started with something simple, applying the small numbers on the rudders. If something had gone wrong during printing, it would have been obvious and I'd have a chance to fix it.

I need not have worried; the decal went on easily. So I decided to swing for the fence and apply the shark-mouth decals to the radome, ***14***. Microscale decal solutions helped settle the remaining custom and aftermarket markings.

After some sealing, weathering, and final assembly — and nearly two decades of neglect — my Sundowners Tomcat was done. A couple of hours invested in creating the right markings paid off. Not only did I get a sharp addition to my collection, but also a huge boost in my ability to make or paint markings on demand. **FSM**

Advance Revell's X-WING

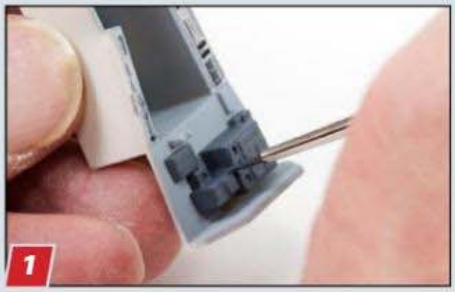
Basic techniques improve a *Star Wars* fighter

BY AARON SKINNER

During the climatic battle at the end of *Star Wars*, Luke Skywalker used the call sign *Red Five*. The term became synonymous with the fighter he piloted.

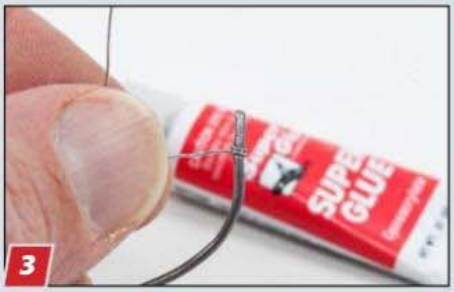
With the possible exception of the *Millennium Falcon*, the most iconic spacecraft in the *Star Wars* universe is the X-wing. The preferred mount of Luke Skywalker, the snubfighter officially known as the Incom T-65B helped the Rebel Alliance to victories at the Scarif, Yavin, and Endor — battles that lead ultimately to the defeat of the Galactic Empire.

Revell reboxed Fine Mold's 1/48 scale X-wing as part of its *Star Wars* Master Series brand. Good shapes and terrific engineering combine to make a first-rate replica out of the box. But, as with all kits, it can be made better with a few extra details, masking, painting, and a combination of paint and pastel weathering. All of the paints used are Testors Model Master enamels.



The cockpit's nicely molded details benefit from careful painting. After airbrushing the cockpit tub dark ghost gray, I hand-painted the boxes behind the seat gunship gray with black details. The side consoles received a base coat of aluminum before I picked out details with chrome silver, schwarzgrau, and black.

On the starboard side of the long instrument panel shroud is a half-round molding to represent some piece of equipment. I planned to replace it with styrene rod because the item should be cylindrical, so I shaved it off with a micro chisel.

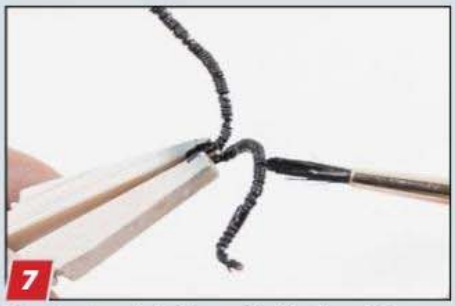


Exhaustive research — repeated viewings of the original *Star Wars* (I love my job!) — showed the kit omits distinctive coil hoses behind the pilot. To create those hoses, I looped 24-gauge wire around 18-gauge solder and secured it with super glue.

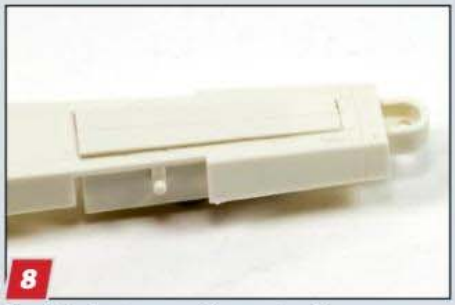
The glue prevented the wire from spinning as I wrapped it around the solder. The winding needed to be pretty tight, so after 10 or so turns I pushed it down against the previous section.

After attaching the seat, I drilled four holes into the deck behind the equipment with a No. 55 bit in a pin vise.

The hoses run from the rear of the equipment deck to the floor alongside the pilot seat. Inserting one end in the hole, I determined the path each hose would follow and trimmed them to length.



Then I painted the hoses flat black and dry-brushed them dark ghost gray.



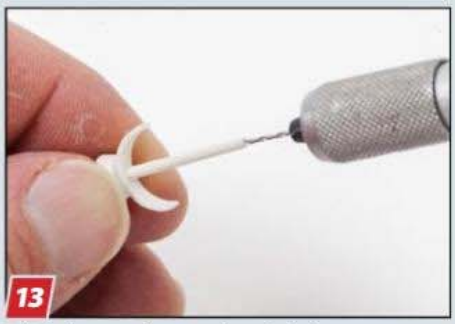
The kit's design provides optional open or closed landing gear bays that can be changed easily thanks to polycaps. I planned to display the ship in flight, but the closed doors aren't quite flush with the surrounding surface.

I fixed the fit by sanding the inner lip that meets the ceiling of the recess. Checking the work frequently ensured I didn't sand off too much plastic.

The rear upper fuselage insert refused to sit down all the way. I snipped off the rear locating pin to decrease resistance and applied a little liquid cement inside the gap to soften the plastic.

I appreciated the open proton-torpedo tubes, but they reveal a wall of plastic inside. To hide it, I hand-painted both the panel inside the fuselage and the interior of the tube sections (parts A16 and A17) flat black.

Mold seams run the length of the laser cannons. I scraped them off with a hobby knife. Take special care around the thin, delicate tips and flashback suppressors.



I drilled open the muzzles of the laser cannons with a fine bit in a pin vise. The hole doesn't need to be deep, but keep an eye on the alignment of the bit to avoid deforming the barrel.

Before painting the exterior, I airbrushed flat black inside the rear fuselage where the mechanism for the strike-foils (S-foils) sits. I wasn't sure what would be visible on the model, so I felt it best to cover the area.

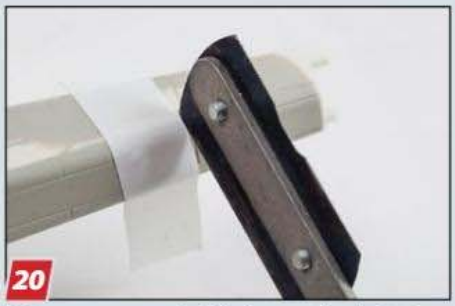
I painted the brackets for the S-foils black at the same time for the same reason.

Pinning down the "correct" color for X-wings is challenging. The filming miniatures appear to have been painted white, but onscreen they look light gray. I sprayed the subassemblies with camouflage gray.

Then I discovered that the kit is missing some distinctive panels seen on the forward fuselage of *Red Five*, the marking option provided in the kit. To make way for sheet styrene, I sanded off the paint.

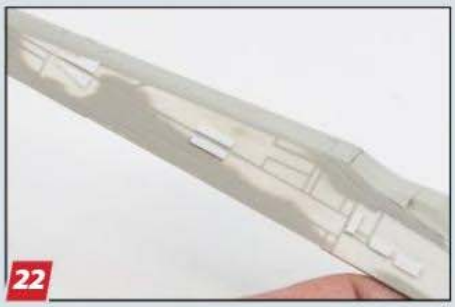
The bottom engraved panel lines below the cockpit shouldn't be there, so I filled them with super glue and sanded the area smooth.

I repaired surrounding panel lines partially obscured by sanding with a scriber guided by tape. Don't press hard when scribing panel lines; let the tool's weight do most of the work.

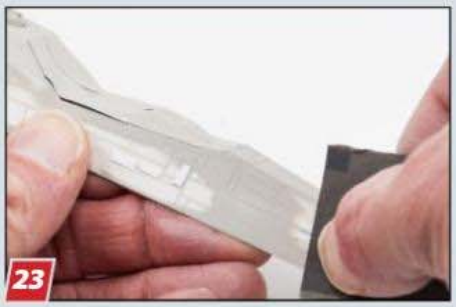


Using a razor saw, I added a couple of missing lines under the fuselage. A few passes are enough to mark the surface.

Referring to stills taken from *Star Wars*, I cut .020-inch styrene strip to match *Red Five*'s raised panels. The tip of a No. 11 blade positioned each strip as I secured them with a little liquid cement.



These panels are based on a wealth of good images I found of the port side of the X-wing. In the absence of similar references for the starboard side, I mirrored the panels.



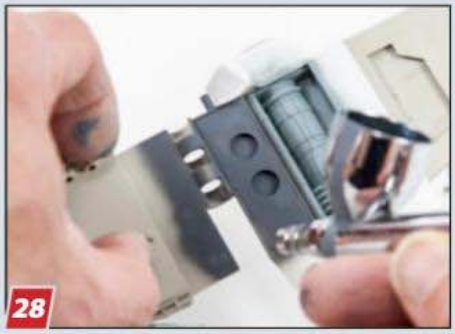
Before respraying the fuselage camouflage gray, I lightly sanded to smooth rough, raised edges on the styrene panels.

I started detail painting with the fusial thrust engines, airbrushing the centers flint gray and the front and rear sections dark gray. The tapered section at the front and the base of the exhaust nozzle are schwarzgrau.

The exposed engines inside the S-foils received a coat of medium gray, …

… but the intakes were painted dark gray.

I applied gunship gray to the dorsal deck where the astromech droid and deflector-shield generator are located.

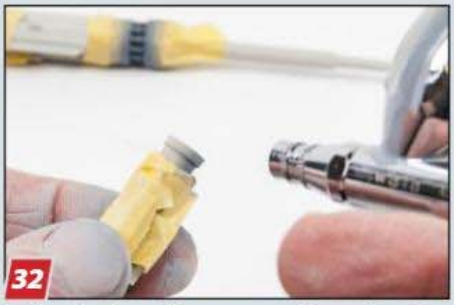


Gunship gray on the sections where the S-foils meet will help hide the interior mechanism later.

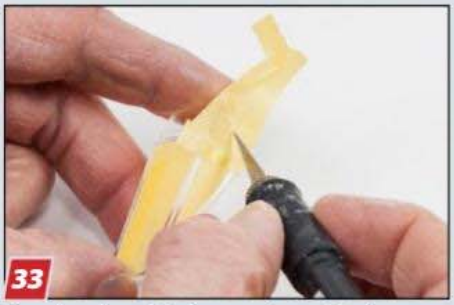
I prepped the parts by masking several panels. Most will be shades of gray: I painted them in a single session, flushing the brush with clean thinner between colors.

I painted the panels around the cockpit flint gray; the panels near the nose are light gray. The fuselage is held together with screws but not glued at this stage, so I can install the foils after painting.

Inside the lower starboard S-foil I sprayed two panels light ghost gray. The kit provided decals for those areas, but they looked too dark.



I airbrushed gunship gray over the cooling fins and actuators on the laser cannons.



The sharply molded canopy's straight lines make masking the clear part easy. I applied Tamiya tape and burnished it into the frames, then carefully trimmed around them with a new, sharp No. 11 blade.

I taped the canopy to scrap sprue and airbrushed light ghost gray.

The area surrounding the cockpit was also painted light ghost gray.

Most of the ribbed section on the engine sections on the S-foils were painted dark ghost gray, but I sprayed the front of the upper port section with a mix of equal parts insignia yellow and gull gray.

For the intake rings, I masked and painted a mix of equal parts intermediate blue and gull gray.

I misted thin camouflage gray over the model to soften the contrast between panels.

Holding the airbrush so the spray pattern was nearly parallel to the dorsal deck, I sprayed thin camouflage gray. The color caught salient points and added highlights; the effect is similar to dry-brushing.

The kit decals provide markings, stencils, and a few panels. I liberally applied Microscale Micro Sol decal solution, using the brush to bend the decals around corners.

Decals supply the instrument panel, but the equipment on the shroud must be painted. I started by carefully outlining the molded panels with aluminum on a fine brush.

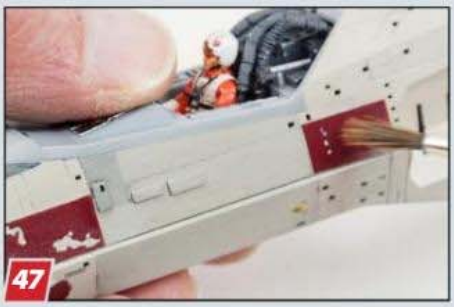
After painting the panels flat black, I added details with insignia red, chrome silver, aluminum, white, and light ghost gray.

Images of *Red Five* show the paint chipped in a few places, including the intake ring of one engine and the spirals on a couple of the laser cannons. I painted those chips with dots of camouflage gray applied with a fine brush.

The decal spirals were too dark, so I faded them with mist coats of thin camouflage gray.

After spraying the pilot with white primer, I painted the flight suit orange, boots black, and chest pack gunship gray with black straps and a gray hose. Tamiya clear orange over flesh looks like the tinted visors seen in the movie. A burnt umber artist's oil wash added shadows.

I used a thin wash of lamp black artist's oils and Turpenoid to enhance details and panel lines on the gray spacecraft.



A clean brush swept in the direction of airflow — X-wings *are* transatmospheric, after all — removed excess wash and created streaks.

George Lucas' vision of a used universe produced beaten X-wings. I started weathering with thin schwarzgrau in the airbrush. After painting the areas around engine mounts …

… I applied thin streaks to the S-foils. Keep the spray pattern fine and move the brush quickly in only one direction to build up faint lines. If you think it needs a couple more passes, stop — it's easy to overdo this effect.

A few splotches of schwarzgrau laid the foundation for engine dirt and grime to come.

Lightly dry-brushed steel imparted a worn mechanical appearance to the engine nozzles.

Red Five showed heavy chipping on and between the S-foils. Using a fine brush and schwarzgrau, I hand-painted those blemishes to match photos and stills. Keeping the bristles moist with thinner improves paint flow and control.

After airbrushing the S-foils and fuselage with Dullcote to even out the sheen, I moved on to pastels for final weathering. Using a hobby knife, I scraped black, dark gray, light gray, burnt umber, raw umber, and burnt sienna chalk pastel sticks over a coffee-can lid.

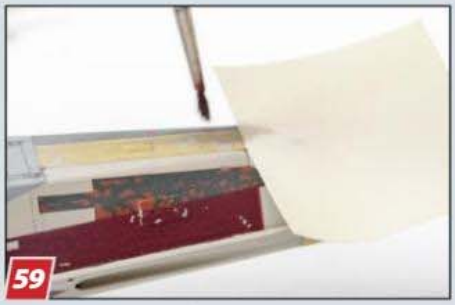
I picked up a little dark brown powder on an old brush and then dabbed it over the model, focusing on the painted chips and around panels. After blowing the excess powder from the surface, I streaked the color lightly aft to create streaks.

Parts of the S-foils are difficult to reach once they are in the fuselage. So I weathered them first, with soot around the vents and muzzles on the lasers, and brown and black on the engines.

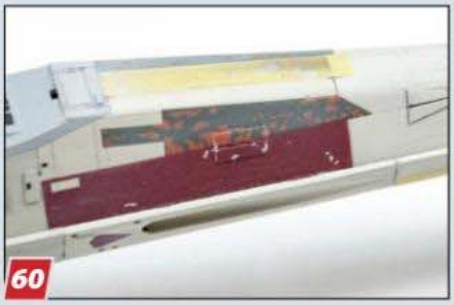
Before installing the S-foils, I brushed dark brown pastels around the opening for them on the fuselage.

Screws join the major subassemblies, but I closed gaps with liquid cement. Rubber bands snugged the parts as the glue dried.

I finished weathering with pastels. Dark brown shades deepened shadows behind the nose cap and the sensor window up front.



To mimic streaking from panel lines, I masked the edge with a Post-it note, then brushed dark gray and black powders back across the edge of the paper.



Removing the Post-it revealed a sharp edge at the start of the streak.

I brushed black pastel powders to depict scorching in the proton-torpedo channel on the forward fuselage. Aft of the launchers, I applied dark gray powder and swept it aft.

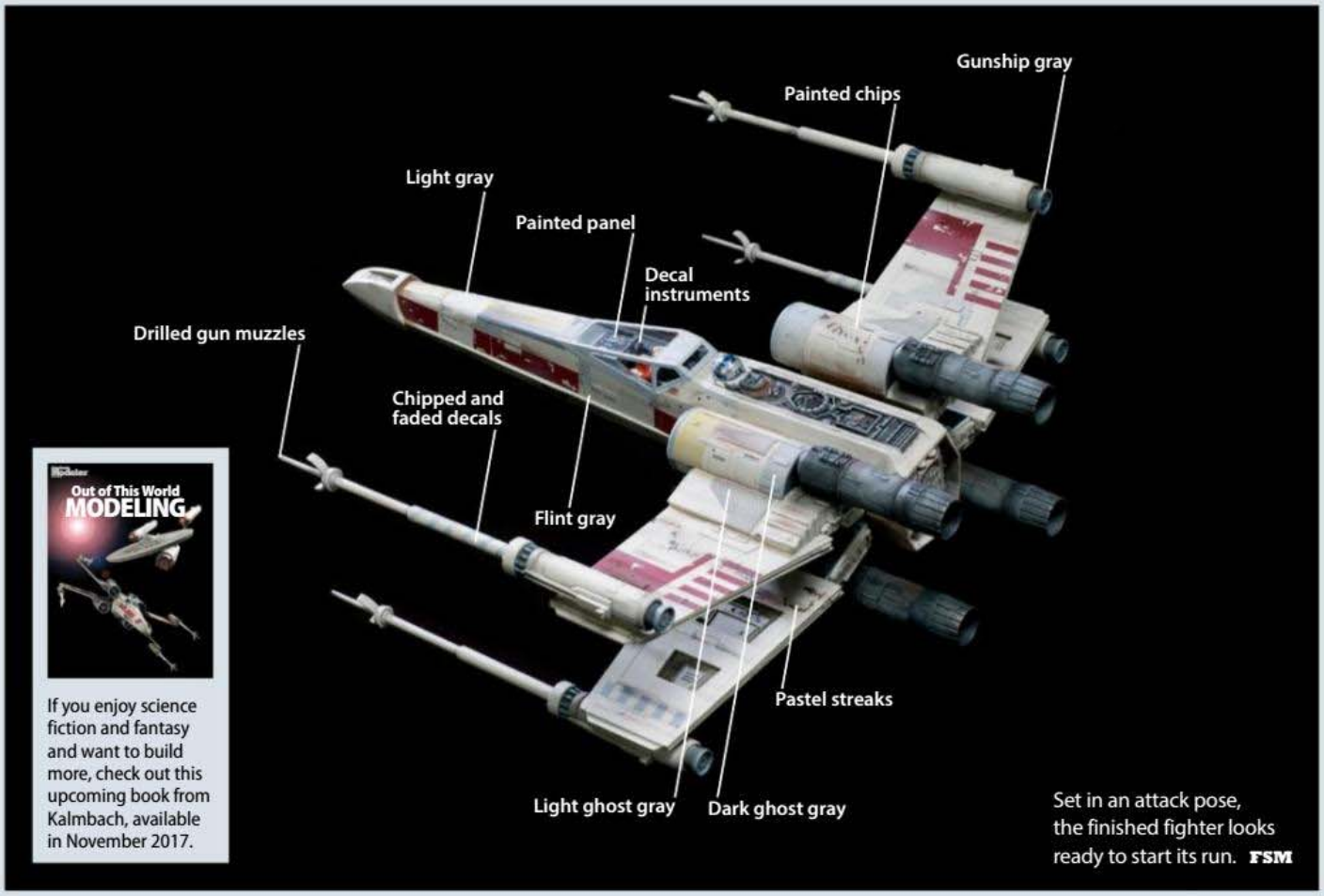
To distinguish dark gray machinery in the dorsal recess, I applied spots of burnt sienna, raw umber, light gray, and black pastels. Feathering the colors over the edges blends the equipment into the fuselage.

I used Post-it notes to mask the pastels under the ship. The darkest colors — raw umber and black — went on first at the back. Moving forward, I used lighter shades with the streaks overlapping the previous layers.

The final cockpit detail replaced the molded item scraped off at the beginning. It's styrene rod painted black and detailed with aluminum and red paint.

Standing the ship on the engines, I attached the canopy with Deluxe Materials Glue 'n' Glaze. A clamp ensured a tight fit as the adhesive dried.

Finally, I painted fluorescent red-orange in the recesses at the center of each exhaust. The color hints at the power of the snubfighter on its way to destroy the Death Star.



If you enjoy science fiction and fantasy and want to build more, check out this upcoming book from Kalmbach, available in November 2017.

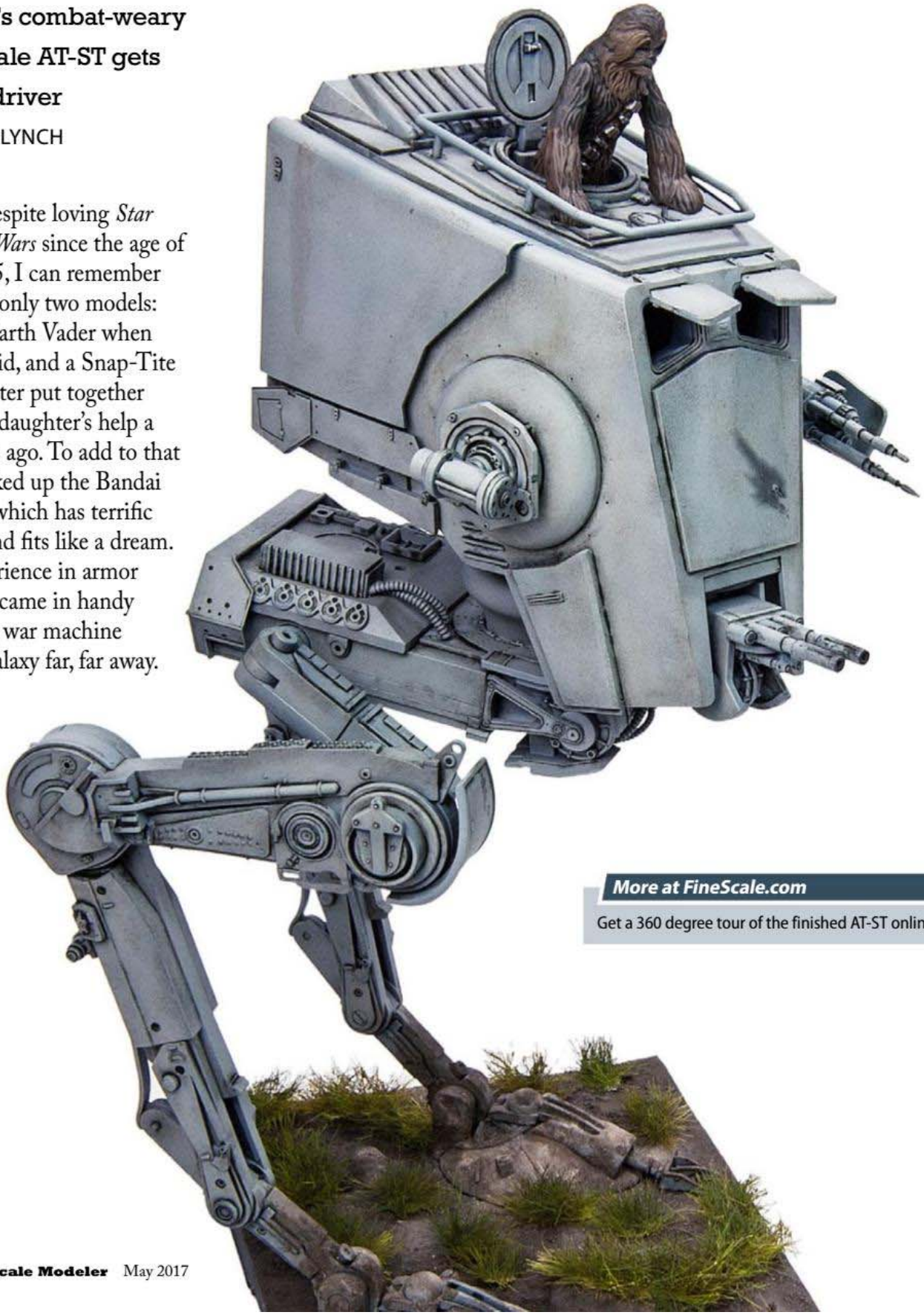
Set in an attack pose, the finished fighter looks ready to start its run. **FSM**

Chewie's wild ride

Bandai's combat-weary 1/48 scale AT-ST gets a new driver

BY SEAN LYNCH

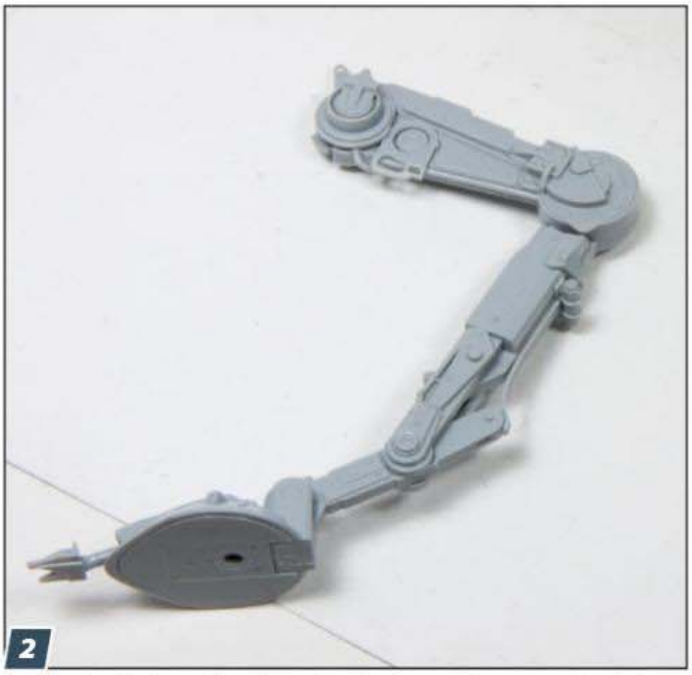
Despite loving *Star Wars* since the age of 5, I can remember building only two models: one of Darth Vader when I was a kid, and a Snap-Tite TIE fighter put together with my daughter's help a few years ago. To add to that list I picked up the Bandai AT-ST, which has terrific details and fits like a dream. My experience in armor building came in handy with this war machine from a galaxy far, far away.



More at FineScale.com

Get a 360 degree tour of the finished AT-ST online.

First, I built the body that connects the turret and legs. The fit is perfect and doesn't require glue, though I added some for insurance.



Each leg builds in sections: lower leg, foot, upper leg, connector to the body, then the knee guard. The legs are posable, so take care when adding glue to ensure the movable parts remain that way.

The legs attach to the central body, as does a neck made of two pieces. (The neck is the only piece that could use some putty.) A simple base comes with the kit, allowing the legs to be set in any position — although the heavy turret makes balancing difficult.

A full interior is included along with two Imperial drivers and Chewbacca: Chewie was my immediate choice. Too bad no Ewoks are provided to complete the gang of rebels.

Inside the AT-ST

The All Terrian Scout Transport (AT-ST), pejoratively called "chicken walkers" by those who do not fear the Empire, is an Ewok-stomping, somewhat peculiar looking machine capable of reaching speeds of 55 mph.

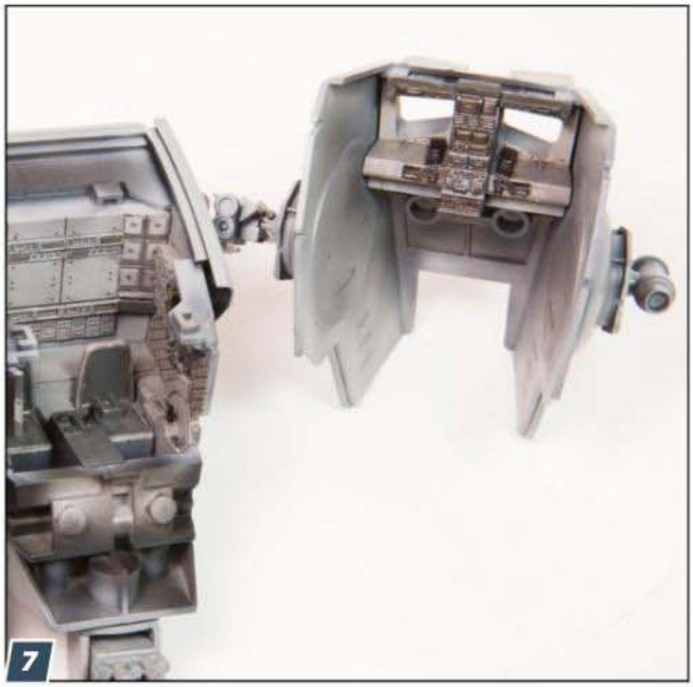
Its 28-foot frame is powered by PowaTek AH-50 disposable high-intensity power cells and carries a Taim & Bak MS-4 twin blaster cannon, an E-web twin light-blaster cannon, and a Dymek DW-3 concussion-grenade launcher.

The AT-ST was used extensively in the Galactic Civil War and is well known for its participation in the battles of Hoth and Endor.

– *Star Wars: Complete Vehicles* (DK Publishing, ISBN 978-1-4654-0874-7)

Check out the turret detail! Painting it gray is easier said than done. Depending on the lighting in the movie, the AT-ST's color goes from light gray to more of a blue gray. Ammo of Mig Jimenez gray (A.MIG-059) works as a good middle ground.

I built up the gray in layers over Vallejo black primer (74.602). Since the model can be snapped together (and therefore, apart), I broke the model into subassemblies to aid painting.



I hand-painted interior details with shades of gray and black as well as red, green, and silver on the instrument panel. Judiciously applied Wilder deep shadow wash (NL02) made everything pop.

Pledge FloorCare Multi-Surface Finish (PFM) provided a glossy base for weathering. With a stubby brush, I applied AK Interactive shadows for gray ships oil paint (AK502) to recesses, panel edges, and low spots. Next came highlights of 502 Abteilung faded gray (ABT100) mixed with Winsor & Newton white blender pigment marker. A dry, wide brush blended these highlights. I thought they overwhelmed the shadows, so I added a layer of dark gray to the shadows and edges.

Before painting, I nicked the faceplate with a pointed steel-cutter bit mounted in a motor tool. The kit decal of the blast mark was applied over this, and the AT-ST received a pinwash of black artist's oils. Here is the AT-ST after a coat of Vallejo satin varnish (70.522) sealed the washes and dulled the finish. Scratches were added to the knee guard with a graphite pencil.

I primed Chewbacca with black, then airbrushed Tamiya red brown (XF-64), allowing some of the black to show through. Vallejo paints completed Chewie. The dark fur is chocolate brown (70.872) with a touch of black gray (70.862). Lighter areas are the base red brown lightly dry-brushed with brown (70.984) and a drop of Model Air dark yellow (71.025). Facial highlights are a mix of brown and plenty of dark yellow. The nose is flat black (70.950); the lips are equal parts salmon rose (70.835) and vermilion (70.947); the bandolier and bag are leather brown (70.871); and the metal is natural steel (70.864). I applied PFM, then a wash of brown and black artist's oils. Once that dried, a coat of satin varnish sealed the Wookie.

I primed the base and painted it with dirt made from Wilder dark brown textured earth (TE03) mixed with a Vallejo European dust wash (76.523). After attaching the AT-ST, I applied the same colors to the feet and lower legs. A black-brown oil wash deepened shadows in the groundwork, and random splotches of Mig Productions' dry mud pigment (P232) provided variety. Finally, I attached patches of static grass.

Wilder black pigment (GP02) added soot to the weapons' muzzles and exhaust stains to the fans on the turret's rear panel. With that, Chewie was ready to take down some Stormtroopers, liberate the planet of Endor, and help break the Empire's stranglehold on the galaxy. **FSM**

Tamiya's 1/48 scale P-51B is a favorite with modelers — but not many of them plug it in to light it up and spin the prop!

Power up a P-51

Lights and a spinning prop bring a Mustang to life /// BY JAMES FULLINGIM

This project started when our model club decided to do a club group build of the Tamiya 1/48 scale P-51 Mustang. I chose the P-51B for the aesthetic appeal of the smooth, enclosed cockpit and streamlined silhouette.

I prefer 1/32 scale, so I had to develop some new techniques for lighting the model. I also wanted to depict it in aluminum with no camouflage. I chose numerous aftermarket detailing accessories, but what I will describe are the electrical details of the working propeller and position lights. The display is powered by AAA batteries embedded in a wood display base.

Electrical connections run from the base to the plane's interior LEDs and a pager motor via the landing gear tires and struts. The LEDs and pager motor are on separate circuits, each requiring a 3-volt battery system of two AAA batteries (each 1.5 volts, a common battery rating that is easy to work with).

I bought wire, switches, solder, and flux from Radio Shack, while I found the pager motor, electrical connection, pins, and SMD LEDs (surface-mount device light-emitting diodes) on eBay.

Soldering

Illumination was added to the wingtip navigation lights, taillight, leading-edge landing light, and the over-boost light in the cockpit instrument panel. I used SMD LEDs because standard LEDs were too large for this scale, ***1*** and ***2***. These lights are compact, flat, square, and incredibly bright for their size.

Photo ***3*** shows a resistor and two SMD LEDs, one on its front and the other on its back. The copper areas will be connected with wire and soldered. The green arrow indicates the direction of the current, from positive to negative, left to right. (If this is connected backward, the LED will not illuminate.)

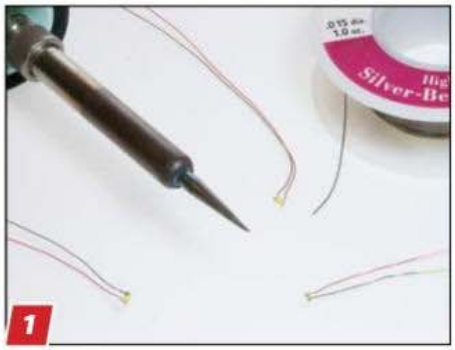
I used 30-gauge enamel-coated magnet wire throughout; it is thin, flexible, and easy to route. After stripping the ends of the wire for soldering, I put on a magnifying headpiece, used a toothpick to apply a bit of flux to the LED connection, and applied solder. For these tiny, delicate connections, I used a Weller temperature-controlled soldering iron with a fine-point tip.

Check, recheck, and triple-check your wiring and electrical system before installing it in your model. Not all LEDs are created equal. Some 3-volt LEDs have an extremely low forward-current requirement. Run the completed circuit on your workbench for several minutes. Touch the LED; it should not be warm, let alone hot. If it is, a resistor is needed. (More on that later.)

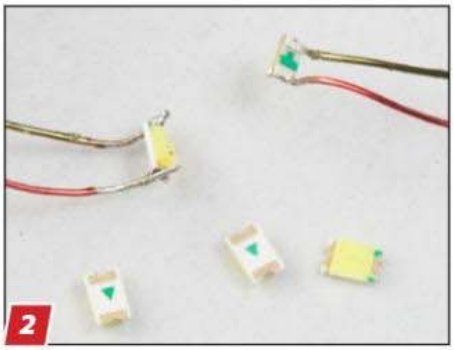
You can calculate the resistor needed and buy it separately, but there are LEDs with resistors already in place, available from model railroad suppliers such as Evan Designs (www.modeltrainsoftware.com).

Wingtip and landing lights

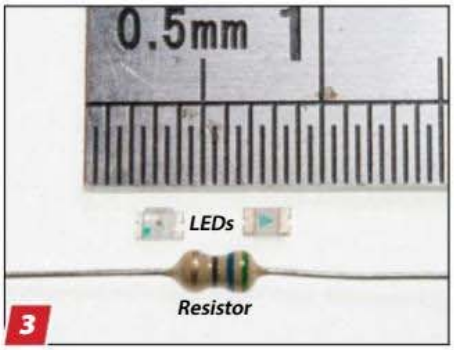
The Tamiya kit depicts the P-51B wingtip navigation lights, which had round, raised glass covers on the top and bottom wingtip surfaces (unlike the more-common flush-mounted lights at the wingtip edges). I



All you need for now: a Weller temperature-controlled fine-tip soldering iron, fine solder, 30-gauge enamel-coated magnet wire, and SMD LEDs.



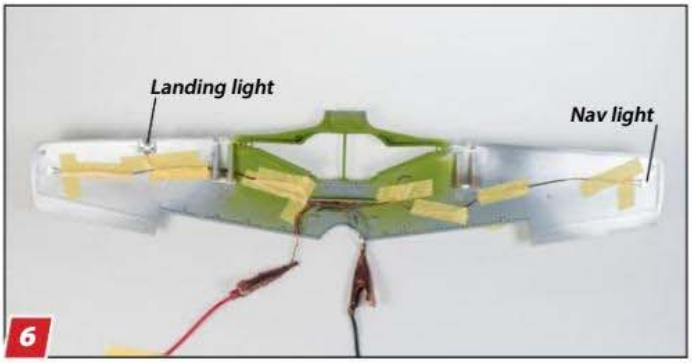
Vision magnifiers are a boon to the modeler making these connections.



It is possible to buy LEDs with the necessary resistors already connected, but here are the components. The LED on the right is face-down; the green arrow indicates the current direction.

Navigation lights from CMK were more accurate for a P-51B. Remember: Red goes to port, green to starboard.

Inside the wing, a white LED pointed at the base of the CMK lens makes it glow.



While white LEDs at the wingtips shine on the navigation-light lenses, on the port leading edge a white LED serves as the landing light. Its compartment is lined with foil to prevent light leakage.

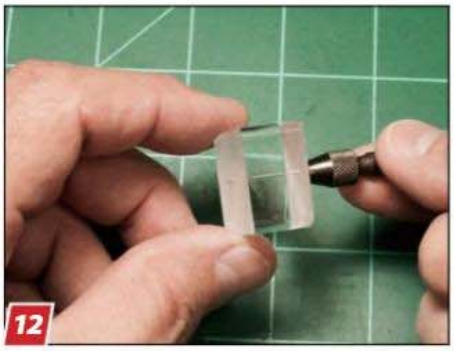
From left: the pager motor; a bit of styrene rod drilled out to accept the pager motor's shaft; and the propeller's spinner.

The styrene-rod shaft replacement drives the prop spinner. But wait — not so fast …

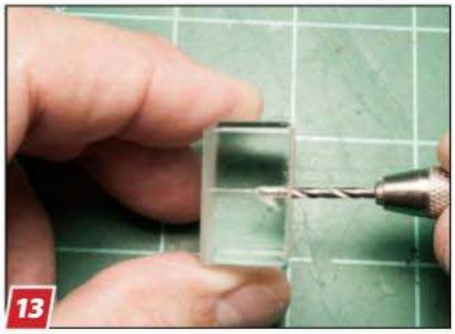
Alignment of the styrene-rod shaft must be true for the prop to spin smoothly. Here are the tools of that trade.

Calipers precisely measure the proper propeller shaft …

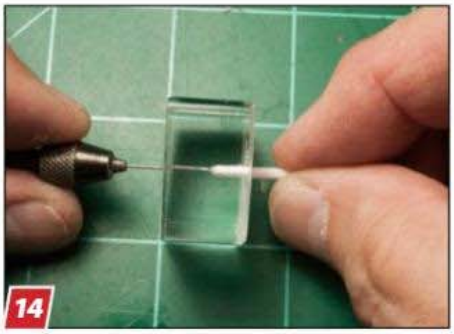
… and pager motor's drive shaft.



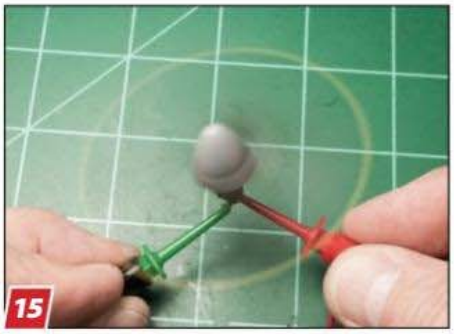
Beeswax lubricates a No. 73 (.024-inch) bit to drill through a tough acrylic chunk. The bit is only slightly thicker than the motor shaft.



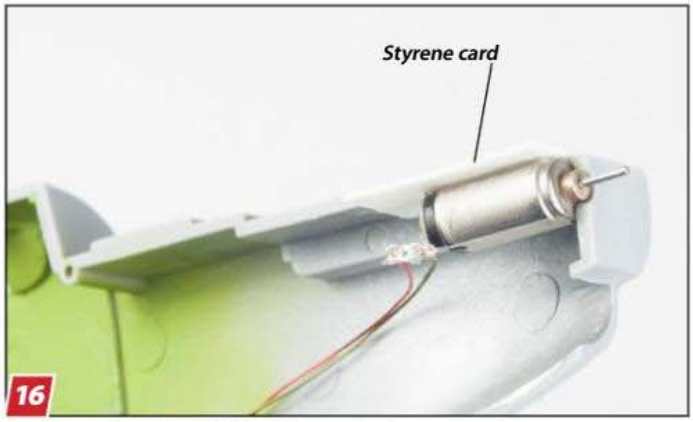
Now, with a bit barely thicker than the prop shaft, drill halfway through the block.



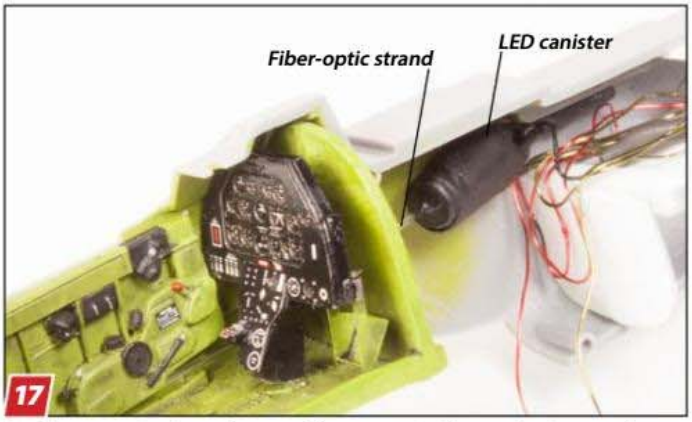
Insert the styrene-rod prop shaft (the fit should be snug) and insert the smaller bit from the other side to drill a hole smack dab in the center of the prop shaft.



It works! Be sure to check before proceeding to make sure the prop spins with no wobbling.



Sawing and carving kit plastic is required to mount the pager motor, which is glued to styrene card above it.



On the same circuit as the propeller motor, inside an aluminum-tube canister painted black to block light, an LED illuminates a fiber-optic strand that runs to the instrument panel.

sliced these off and filed square holes to mount navigation lights from CMK (No. 4060), ***4***. White LEDs inside the wing were pointed at the bases of the CMK lenses, giving them a realistic glow, ***5***.

I modified the landing-light compartment on the starboard wing to install a forward-facing white LED, lining the light box with Bare-Metal Foil to both reflect light outward and to block it from inside the model, ***6***. To keep light from penetrating the plastic wings, I painted the inside areas around the LEDs flat black. A coat of Alclad II aluminum over the flat black added opacity while reflecting light inside, making the wingtip lights a little brighter.

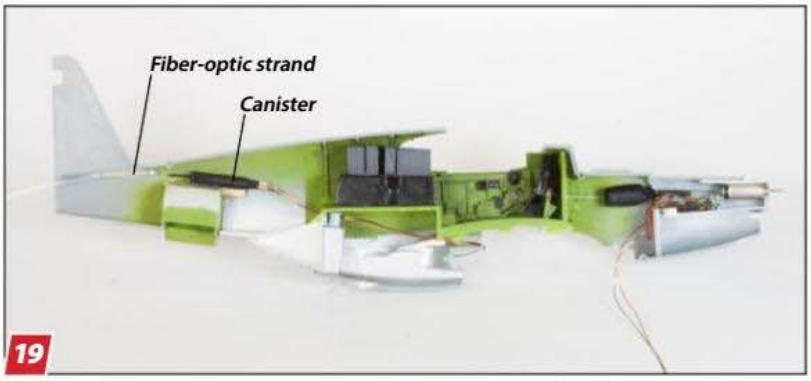
Giving the prop a spin

The propeller would be driven by a 3-volt pager motor small enough to fit inside the engine cowling. These can be found on eBay and are available with or without a fixed weight on the shaft (the weight being what makes the pager vibrate). I recommend purchasing one without the weight to avoid damaging the shaft while attempting to remove the weight — although there are numerous tutorials online that show how that can be done (see Robotroom.com/TinyMotor.html).

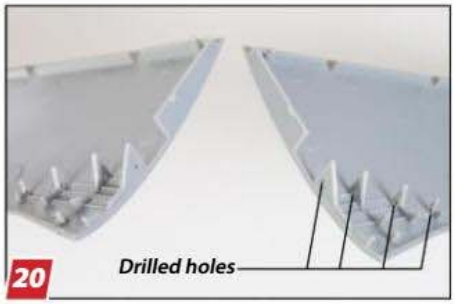
The kit's molded propeller shaft receives the assembled propeller. So, the new working propeller required a plastic shaft modified to connect to the pager motor's .023-inch-diameter shaft, ***7***. In turn, the styrene rod turns the prop, ***8***.

The added styrene rod would have to be perfectly centered to spin at high speed without wobbling, and that's not easy. Photo ***9*** shows what I needed: a 1 x ½-inch block of clear plastic, cut from a section of square acrylic rod on a band saw; miniature

The over-boost warning light comes on when the prop is spinning, bringing drama to the cockpit.

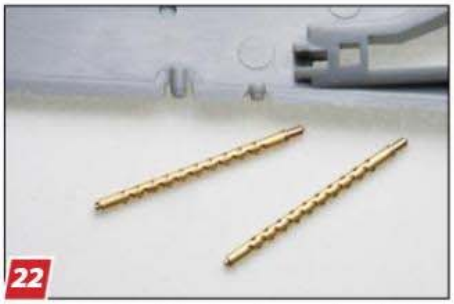


A similar arrangement provides a taillight. Wired in parallel with the wing lights, an LED in an aluminum canister lights a fiber-optic strand that terminates at the tail.



To create a path for the wires coming out of the wing, holes were drilled in the molded landing-gear supports.

Brass tubes, super glued inside the wing, serve as sturdy mounts to keep the machine-gun barrels true.



Air Master .50-caliber barrels are a fine detail upgrade to this Mustang's armament.

drill bits and a pin vise; beeswax to lubricate the drill bits; and digital calipers for precise measurements.

The new propeller shaft must be perfectly round and drilled out on one end to accept the pager motor's shaft. Measure the opening of the kit's propeller hub where the new shaft will go. On mine, the hole's diameter is .0825 inches; the Evergreen styrene rod I chose was also .0825 inches, ***10***.

Now, measure the diameter of the pager motor's shaft; in this case, it was .023 inches, ***11***.

The clear acrylic block is very hard. To prevent breaking my delicate micro bit, I lubricated it with beeswax. Using a No. 73 (.024 inch) bit in a pin vise, I hand-drilled all the way through the block, ***12***.

This first drilling produced a pilot hole that made the next round of drilling easier. Working from the other side of the acrylic block with a No. 46 bit, I drilled only halfway through the block, producing a hole to seat the .0825-inch propeller shaft, ***13***.

Now put the styrene-rod prop shaft into the larger hole until it stops in the middle of the block; the fit should be tight. From the opposite side, insert the No. 73 bit again and bore into the styrene rod, ***14***.

> ***"When I saw Mustangs over Berlin, I knew the jig was up."***
>
> ***– Hermann Göring, Luftwaffe Reichsmarschall***

The resulting hole will be perfectly centered in the prop shaft, allowing it to turn at high speed with no wobbling. Again, check before installation, ***15***.

The Tamiya kit had a plastic propeller shaft molded onto the front of the nose; this had to be removed for the new electric motor, ***16***. The inside of the cowling also had to be cut and filed to accommodate the motor. I glued styrene card stock to the top of the engine compartment to make a level surface for attachment.

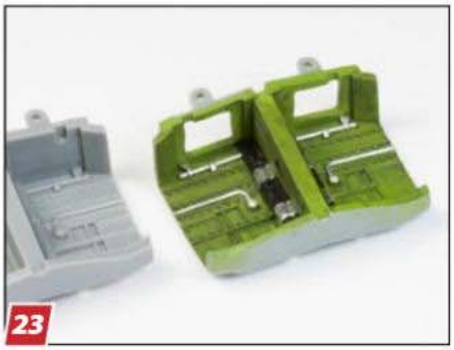
The motor's shaft had to be parallel to the flight path to operate properly. I super glued the motor inside the top of the cowling and used a ruler to help orient the motor before the glue set.

Over-boost and taillight

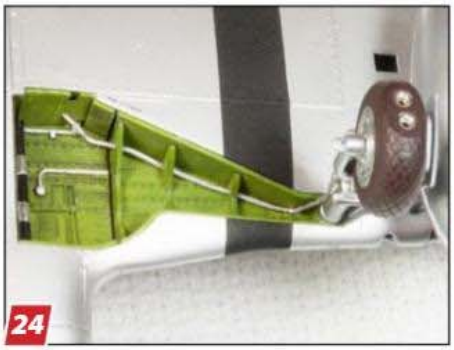
I wanted to have an amber over-boost warning light illuminate on the cockpit's instrument panel. However, a resistor was needed to slightly lower the voltage for the lower-rated amber LED. The amber diodes have a forward voltage of 2 and a forward current of 20 milliamps (mA). Without the resistor, my 3-volt battery system would immediately overpower the LED and burn it out. Using Ohm's Law — $V = I \times R$, in which V stands for voltage (in volts), I stands for amperage (in amperes), and R stands for resistance (in ohms) — I calculated that a ⅛-watt, 56-ohm resistor would be needed to step the voltage down to an acceptable 2 volts for my LED to work properly. The color bands on the resistor seen in Photo ***3*** — green, blue, and black — indicate a 56-ohm value. The gold band indicates the tolerance of the resistor, which is 5%. Either side of the resistor can be connected in this circuit, as the direction of the voltage does not matter. However, it must be connected before the voltage reaches the LED.

For the instrument panel's over-boost light, I placed the amber LED inside an aluminum tube to prevent stray light and ran a .5mm fiber-optic strand from there to the back of the instrument panel, ***17***. I drilled a hole through the firewall and in the instrument panel to receive this strand, which was flush-mounted in the panel. After connecting the LED wiring in parallel with the propeller circuit, the propeller activated the amber light to replicate an over-boost warning, ***18***.

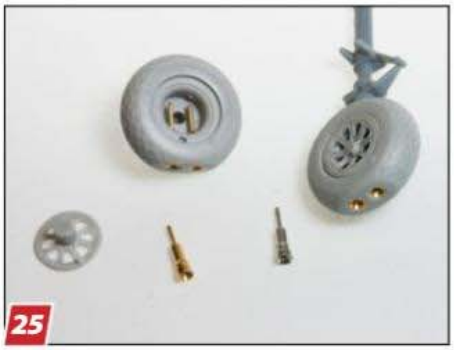
The white LED on the tail was similarly installed with a .5mm fiber-optic strand. The LED is mounted inside a canister behind the cockpit with the fiber-optic line exiting through the rudder, ***19***. This assembly was later wired in parallel with the rest of the wing lighting.



On the left, the unmodified kit part; on the right, openings are cut out for wiring from the fuselage and wings to emerge.

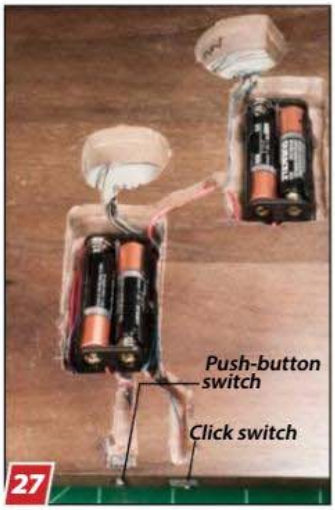


Wiring from within proceeds through drilled holes on its way to the landing-gear legs and wheels.



Eduard Brassin wheel details help conceal female connections that will receive male connectors embedded in the display base.

Wires posing as brake lines run through the wheel wells and down the gear legs, terminating beneath each wheel.



The thick plaque used for a display base afforded depth to bury the battery holders and wiring underneath.

Perforations in the pierced-steel planking present an opening for male pin connectors carrying battery power to the receptacles under the plane's tires.

Running to the home stretch

So, I had two circuits: one for the navigation and landing lights, and one for the propeller and cockpit light. I activated the circuits on my workbench for several minutes to ensure they would run cool.

There was still work to do before bringing the wires out through the landing gear bay. I used a micro bit in a pin vise to drill tiny holes through the molded landing gear supports to plumb the wires, ***20***. This greatly aided guiding the wires into the wheel well.

For more realistic firepower, I used Air Master Browning M2 .50-caliber brass gun barrels in the wings (No. AM-48-001). I cut out the kit-molded gun mounts and, to ensure alignment, I super glued aluminum tubes inside the wings to hold the gun barrels in position, ***21***. The aftermarket barrels represent a marked improvement on the plastic parts, ***22***.

I cut out the back of the wheel well (Part B23) where the wires would run to each landing gear strut, ***23***. I bundled the wires from the propeller circuit to the inside, port side of the wheel well; those from the LED lights in the wings went to the inside, starboard side of the wheel well. I labeled these with tape to prevent any confusion when it was time to hook it all up. Luckily, the Tamiya design provided plenty of space to stash the bundled wiring; later, I could fish it out with tweezers.

I closed these openings with PE panels that helped detail the wells and conceal the open area beyond, ***24***.

Disguised as brake lines, the wires run down the gear legs to the tires. Eduard's Brassin P-51 wheel set worked well with this. I flattened the bottom of the tires with a file and sandpaper, making them look weighted and providing a location for the female DIP IC (dual-inline-package integrated circuit) pin connectors, ***25***.

Sources

Aluminum tubing, Albion Alloys (No. SFT3), www.albionalloys.co.uk

Browning M2 .50-caliber gun barrels, Air Master (No. AM-48-001), from Master, www.master-model.pl

Fiber optics, The Fiber Optic Store, www.TheFiberOpticStore.com

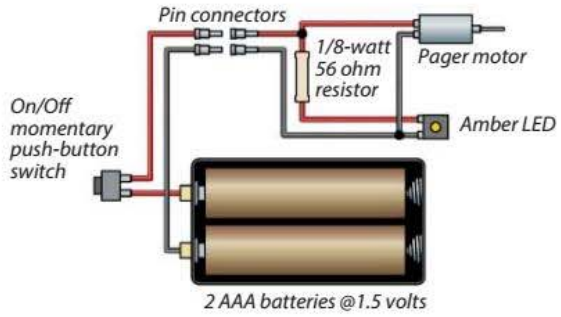
Navigation lights, CMK (No. 4060), www.cmkkits.com

P-51 wheels and tires, Eduard Brassin (No. 648092), www.eduard.com

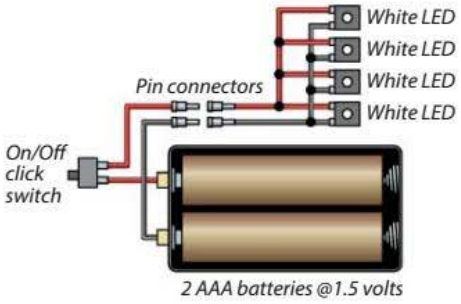
Pierced-steel planking, Custom Dioramics (No. CD48559), available from Squadron, www.squadron.com

Electrical schematic

Propeller and cockpit light



Navigation and landing lights



Flat black washes weather and lend contrast to the PSP surfaces. Electrical wiring, LEDs, resistors, and power connections have disappeared from view with the completion of the project. You'd never know they were there — unless you hit the switches on the back edge of the plaque.

There were two sets of positive and negative voltage wires in my electrical circuit; I super glued the 40-gauge wires in pairs and airbrushed the wires silver to resemble single brake lines, ***26***.

Powerful display base

The display base is a wood plaque I bought at a trophy shop. I gouged out the underside with a motor tool connected to a router accessory to embed two AAA battery holders and the wiring; two-part epoxy held the holders, ***27***.

I used a click switch for the lights; they could stay on for hours without draining the batteries. The motor required a higher electrical load, though, so I wanted a shorter-duration push-button switch for that circuit. The schematic drawing above shows how each circuit is wired and powered by two AAA batteries.

Two 1-inch-diameter holes were drilled through the top of the board for the wiring. Topside, male contact pins would protrude through pierced steel planking (PSP), ***28***. Underneath the plane's tires, they would meet the female connections to all the onboard wiring.

The PSP is a Custom Dioramics resin product available from Squadron (No. CD48559). I attached it to the wooden base with two-part epoxy; it dried flat on the base, not-so-gently persuaded by six 1/1 scale bricks.

Finally, after eight months, my project was finished. The SMD LEDs proved their worth in compactness, brilliant illumination, and cool operation — and they require less amperage than bigger LEDs, which extends battery life. By powering the lights and a spinning prop, just a little electricity put a real jolt in this display. **FSM**

▲ CHRISTOPHER BOWLING
LOUISVILLE, KENTUCKY
Christopher converted Dragon's 1/35 scale UH-1D to an H and set it down on a plywood display base that he covered with sanded grout. He used model railroad landscape material for grass and bushes on the base.

▶ BRIAN MESSIER
FAIRHAVEN, MASSACHUSETTS
Thunderbirds are go! Looks like *Thunderbird 2* is about to deploy *Thunderbird 4*, the utility submersible piloted by aquanaut Gordon Tracy — either onboard or remotely via his wristwatch. Both are Bandai 1/450 scale kits.

◀ PETER CARR
BEDFORDALE, WESTERN AUSTRALIA, AUSTRALIA
Peter writes: "*Crom!* This diorama was created around Andrea Miniatures' 54mm Barbarian and Forge World's Dread Maw, which work well together. The base was made using a thin layer of clay rapidly dried in Perth's 45 C (113 F) summer sun to get a realistically cracked surface. The saliva on the Dread Maw is from a glue gun."

▶ LARRY DAILY
SHEPHERDSTOWN, WEST VIRGINIA
Here's one way to take up undeveloped space in a model railroad layout: Larry rolled out a Busch grass mat and parked Accurate Miniatures' 1/48 scale P-51B. He added an Aires resin cockpit and installed UltraCast flaps, wheels, and exhausts, along with landing gear from Scale Aircraft Conversions. The markings are for *Ill Wind?* flown by (then) Lt. Nicholas Megura.

◀ STEVEN FEIT
DUBLIN, OHIO
Reference photos inspired Steven to build a rail-borne self-propelled gun, and Dragon provided the 1/35 scale kits he wanted: a Schwere Plattformwagen Type SSy flatcar carrying a SdKfz 165 Hummel with Friulmodel tracks. Steven airbrushed with Tamiya paints, hand-painted details with Vallejo acrylics, and weathered with artist's oils, AK Interactive products, pastels, Mig pigments, colored pencils, and inks.

▶ RALPH RADFORD
ANCHORAGE, ALASKA
Combining three 1/35 scale Italeri kits, Ralph made a HEMTT (Heavy Expanded Mobility Tactical Truck) cargo container vehicle. He says, "I had to go to a military base to study the additional axle on the truck. I was given a tour of the motor vehicle area, where there were several HEMTTs and tow vehicles. "Then he had to go to a bead store to find the right shape for the extra axle's airbag.

ALLAN AGATI
BACOOR, CAVITE, PHILIPPINES

Allan writes: "This is a scratch-built 1/700 scale model of the BRP (*Barko ng Republika ng Pilipinas, or* Ship of the Republic of Philippines) *Bacolod City*, lead ship of its class in the Philippine navy. Everything but the photo-etched railings and hull number decals was made from sheet styrene and copper wire. The cargo deck was much harder to build than it looks. It took me about half a year, but knowing I'm probably the only one who has a model of this in 1/700 scale makes it all the more worthwhile. The tugboat was scratchbuilt too, by the way."

SCOTT WAMPLER
WEST POINT, VIRGINIA

You know you have the right ride when you want to build a model of it, as Scott did when he combined Revell's 1/24 scale 2006 Mustang GT and 2008 Steve McQueen *Bullitt* Mustang kits to portray his own car. He added an aftermarket front spoiler, flocking for the interior, a scratchbuilt engine cover, and an SCT tuner. Designing and printing his own decals made the project even more personal.

DAVID ARMITAGE
BATAVIA, NEW YORK

To illustrate his college lectures on World War I weapons, David shows photos of his models — like this Blue Max 1/48 scale Vickers F.B.5 Gunbus. He built and painted it to represent a plane of the Royal Flying Corps in 1915 France.

RICHARD DAVENPORT
LANSING, MICHIGAN
Richard built a Bf 109G-14 from an old Fujimi kit, using Aires resin and photo-etched gear in the cockpit. The paint scheme is from the plane flown by Unteroffizier Karl-Heinz Erler of Jagdgeschwader 5, Rygge, Norway, in April 1945. The kit provided Cartograf decals.

◀ LARRY BALL
STEVENS POINT, WISCONSIN
An art history professor at the University of Wisconsin-Stevens Point, Larry enjoys turning old shelf-dwellers into bold prototypes with "paper panzers" that never made it onto paper. His 1/35 scale "Flakpanther (30mm), 1945" is based on a Tamiya Panther A. Larry says, "The Germans were developing the Panther II and E-50 to replace the Panther, so old Panthers could be made into SP conversions in 1945. Unlike most 'paper panzer' FlaK designs, this is not a matter of using the biggest possible cannon. Instead, carrying enough of them means there's a good chance a short burst will actually obtain hits on fast-moving aircraft. I used the same 30mm Mk.103 guns as the Flakpanzer IV Kügelblitz."

Don't worry, it's only resin

Building and painting Contrail's 1/144 scale 757-200 /// BY FRANK CUDEN

I was fortunate enough to receive the first-issued kit of Contrail's all-resin 1/144 scale Boeing 757-200 — No. 1 off the line, if you will.

It wasn't my first resin kit, but it came with no instructions. I was tempted to cry *Uncle!* a couple of times, not knowing just how or where parts were supposed to go. For instance, I followed my nose and found out my nose was wrong when I glued the tail skid 180 degrees opposite of its position on the extreme rear underside of the fuselage. Oh, and the one-piece fuselage is pre-weighted so the model will stand on its gear — so hefty that you could leave the wings off and use it as a billy club. Good thing it had white-metal landing gear — if I could ever figure out how to assemble it!

However, knowledgeable friends and the Internet helped me complete a model that doesn't look bad after all.

35,000+

Number of Earth-Moon round trips equivalent to the mileage flown by the Boeing 757 fleet.

– British Airways

Seeing the initial issue of this kit was daunting. Although all mating surfaces are butt joins, thin super glue secured the wings and tail members. Some filler was required along the joints, but nothing major.

I needed to fill three holes in the port wing's leading edge. For this I recommend Kiss acrylic liquid and powder, a nail-care product. It's tough as super glue and easy to sand to a smooth finish. Great for resin.

All the main components are joined, smoothed, and airbrushed with Floquil primer. Be careful aligning the one-piece vertical fin and rudder.

Closer inspection indicated further smoothing of surface imperfections. The splotches show where I've been doing more fine sanding.

I super glued the white-metal main gear legs and resin retraction struts. I had to rescribe some panel lines erased by sanding, and I deepened others just for looks.

More sanding and smoothing: Recessed lines on the engine and slats would have to be rescribed, too.

Good fits: No filler is necessary for the horizontal stabilizers.

After crowning the fuselage with Testors white enamel, I waited two days before masking. Much measuring and adjusting went into placing the thin lines mid-fuselage. On the tail, Testors Model Master insignia blue is a close match to North American's blue.

I mask with short sections of tape rather than trying to place one long strip. It helps keep edges straighter and is less stressful when pulling off the tape.

After painting with insignia blue, it was time to remask and spray the wings. I do go through quite a bit of masking tape!

More of the same masking: The tan stuff is drafting tape; I like filling larger areas with it because it has a lower tack, minimizing the risk of paint pull-up.

I've sprayed the wing edges with Xtracolor Boeing gray, then masked and sprayed Floquil primer on the starboard wing box. It's easier that way — less masking. I do one wing at a time; the less time tape is on the model, the easier it is to pull up.

I masked, then airbrushed the engines' leading edges with Alclad II polished aluminum. The time I took to mask the busy underwing surfaces paid off — no overspray.

Finally ready for panel lines: I traced recessed lines with a B artist's drawing pencil, using a light touch and keeping it sharp as I went along.

I decaled the thin yellow cheat line at mid-fuselage in 2- to 3-inch sections to keep it straight. I've also begun placing decals for windows and door outlines, also in sections; Draw Decal's instruction sheet helped place them.

Apply the cockpit window decal and, just like that, it looks like an airliner! Alclad II polished aluminum was perfect for wing and tail leading edges; not too shiny, but brighter than plain aluminum.

To correct the color of the star field on the tail's big flag decal, I masked and sprayed that area white, then applied the entire corrected decal over the first. Antennas are cut and formed from sheet styrene. Tiny Rolls-Royce logos adorn the engine cowlings. I chose one of the aircraft names on the decal sheet — *Spirit of Oakland* — and applied the decals just forward of the front doors. With the weight of resin, this model is in no danger of vibrating off any shelf. **FSM**

Pacific War Gallery

To mark the 75th anniversary of the start of World War II, *FSM* held an online contest to see your best models from the Pacific theater. You delivered in stride! Here are the top 12 models, comprising the editors' picks and your choices.

See all of the contest entries

View more *Pacific War* creations online at FineScale.com/OnlineExtras.

▲ MASSIMO SANTAROSSA
CALGARY, ALBERTA, CANADA
This SBD-3 Dauntless of VS-2 squadron aboard USS *Enterprise* in spring 1942 is an Accurate Miniatures 1/48 scale kit. Massimo added resin seats, replacement .50-caliber barrels, and twin .30-caliber guns. He painted all of the marks except the letters and numbers with Testors Model Master colors.

▲ PAULO AYRES MUSELLI de MENDONÇA
PORTO TROMBETAS, BRAZIL
Paulo added a ton of aftermarket parts from Pontos and Lion Roar to complete Tamiya's 1/350 scale *Yamato*. He finished the Japanese battleship as it was on March 19, 1945, during an Allied attack on Kure.

▶ CHRIS KELLEY
ALEXANDRIA, VIRGINIA
Chris' grandfather was with VBF-87, which flew the 10,000th Hellcat. Chris painted Eduard's 1/72 scale F6F-5 with Tamiya acrylics over Testors Metalizer and AK Interactive chipping fluid. The decals are from SuperScale.

◀ DAVID KOPIELSKI
SCHAUMBURG, ILLINOIS
This 1/700 scale USS *Dale* (DD-353) started as a Niko Models resin kit of the USS *Hull*. The ship is painted as it was on the morning of Dec. 7, 1941. David used Testors Model Master paints and created the water with acrylic gel. The *Dale* was one of the few that made it out of Pearl Harbor during the attack. David built it for Seaman John Cruce, who was aboard that morning; he served on the ship until the end of the war. The model was presented to him on his 100th birthday, Jan. 10, 2016.

▶ GEORGE CLOVER
CATHEYS VALLEY, CALIFORNIA
George built Accurate Miniatures' 1/48 scale B-25B as Lt. Col. Jimmy Doolittle's Mitchell, which led the American raid on Tokyo on April 18, 1942, after launching from the carrier USS *Hornet*. George painted the bomber with Testors Model Master enamels; a combination of enamels and Alclad II steel finished the carrier deck.

◀ JIM LEWIS
CAMPBELL, CALIFORNIA
Jim modified Tamiya's 1/35 scale M10 tank destroyer with Eduard, CMK, Royal Model, AFV Club, and Hobby Fan details. Equipment placards and markings are from Woodland Scenics and Archer Fine Transfers. He finished with Vallejo and Tamiya acrylics, Mig pigments, Abteilung 502 artist's oils, and AK Interactive enamels. The model depicts an M10 from the Battle of Kwajalein.

◀ JONATHAN SCOTT
LAWRENCEVILLE, GEORGIA
Jonathan based his diorama on an aerial photograph taken on Oct. 24, 1944, when Helldivers of VB-20 attacked IJN *Fuso* in the Sulu Sea. Photo-etched metal replaced most of the superstructure, funnel, and searchlight tower on Aoshima's 1/700 scale kit. The Type 96 light machine guns were replaced with weapons from 3DModelParts. To replicate *Fuso's* crew, Jonathan hand-painted about 700 Blue Ridge Models resin figures. Liquitex gloss gel applied in several layers over a painted wooden base created the sea and splash effects.

▶ JEREMY CHEUNG
BEECROFT, NEW SOUTH WALES, AUSTRALIA
Jeremy's scene shows the aftermath of the Battle of Okinawa in 1945, the peak of Japan's kamikaze attacks. The Zero is 21st Century Toy's 1/32 scale kit. Crushed tinfoil and styrene strips created the torn fuselage and wings. The landing craft is Revell's 1/35 scale UDT boat. Jeremy added driver's controls, gun-shields, stanchions, and life-ring ropes. The figures are a mixture of Master Box, Tamiya, Dragon, and Trumpeter.

▶ STEVEN MURRAY
KATY, TEXAS
Steven added an Ultracast seat with belts, a Squadron canopy, and an EZ Line antenna to Tamiya's 1/48 scale F4F-4 to recreate a Wildcat from VF-22 aboard the USS *Independence*. He painted with Tamiya, Testors Model Master, and Vallejo colors.

◀ DONGYO KIM
GOYANG, SOUTH KOREA
During the Battle of the Philippine Sea, so many Japanese planes were shot down that it bacame known as the Great Marianas Turkey Shoot. Dongyo created a forced-persepective scene with an Eduard 1/48 scale Hellcat downing a 1/72 scale Zero.

▶ RICHARD ALLSEBROOK
SHEFFIELD, SOUTH YORKSHIRE, ENGLAND
Titled "Secure the area!" Richard's diorama depicts U.S. soldiers moving into a riverside village. This 1/72 scale scene comprises Dragon and Academy vehicles, Caesar Miniatures figures, and scratchbuilt buildings, foliage, and base.

◀ JACK LYNCH
FALLSINGTON, PENNSYLVANIA
Jack's father served on the USS *Fleming* (DE-32), an *Evarts*-class destroyer escort in the Pacific from 1944-45. Active in the Marianas, and at Saipan and Okinawa, *Fleming* is credited with sinking the Japanese submarine *I-362* in January 1945. Jack modified Revell's 1/249 scale *Buckley*-class DE; everything topside is scratchbuilt. **FSM**

This rare variant

Making Tamiya's T-72M1 less common /// BY MICHAEL GROCHOLA

In modeling, as in the real world, there are a lot of T-72 tanks. And, as always, an unusual variant adds excitement. Modifications make this 1/35 scale T-72M1 stand out from the crowd.

The T-72 main battle tank burst onto the military scene more than 40 years ago and is still in service with more than 40 countries. Evolving from efforts to make the troublesome T-64 tank viable, the T-72 succeeded in becoming one of the most widely produced and distributed post-World War II main battle tanks in the world.

A photo of a T-72 dated early in the Soviet-Afghan War piqued my interest as a way to model the variant represented by Tamiya's 1/35 scale T-72M1 (No. 35160). Although most sources say it never entered combat in Afghanistan, there are mentions of this export version, built under license in Eastern Europe, being field-tested there.

The M1's peculiarities were an opportunity to extend my skills in modifying the kit and scratchbuilding details that would make my tank unique.

Lower hull and tracks

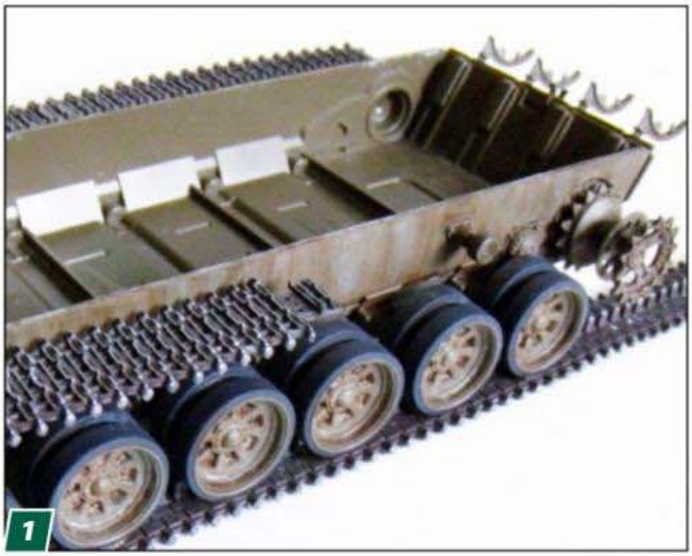
I added a pair of Friulmodel drive sprockets (No. AW-08) from my spares stash, but the suspension details provided by the kit are sufficient, even with the "rubber band" single-piece tracks.

I base-coated the tracks with Tamiya flat earth (XF-52), then applied a series of washes: Winsor & Newton burnt umber and burnt sienna artist's oils, and Floquil weathered black enamel. (Floquil paints are now out of production.)

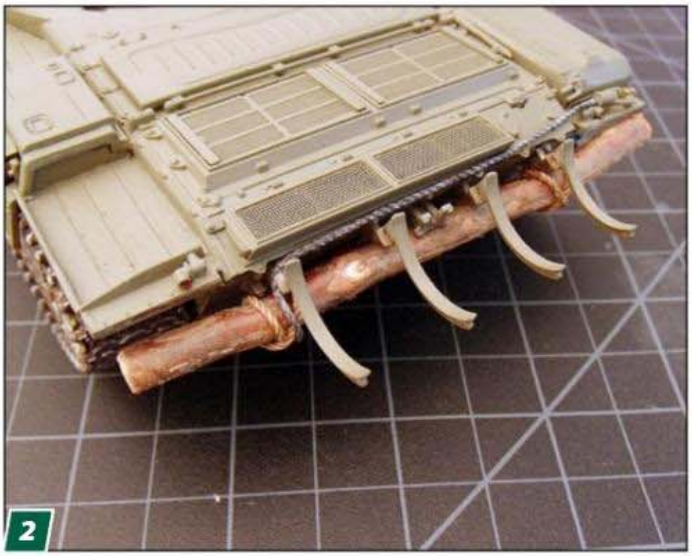
When all the washes had dried, I started the work of mounting the tracks, ***1***. Some modelers resort to staples or sewing thread to join the ends of each track. I relied on glue: First, I attached the tracks to the road wheels and idler with Elmer's All-Purpose Polyurethane Glue. (It has gone through name changes since, "Nano" glue, now "Glue-All Max.") I gave it a day to dry.

After letting it dry I super glued the ends, letting them dry a few minutes before adding a dab of Elmer's to ensure the bond. This glue expands with moisture — even humid air can cause it to bubble up when drying — so use it sparingly.

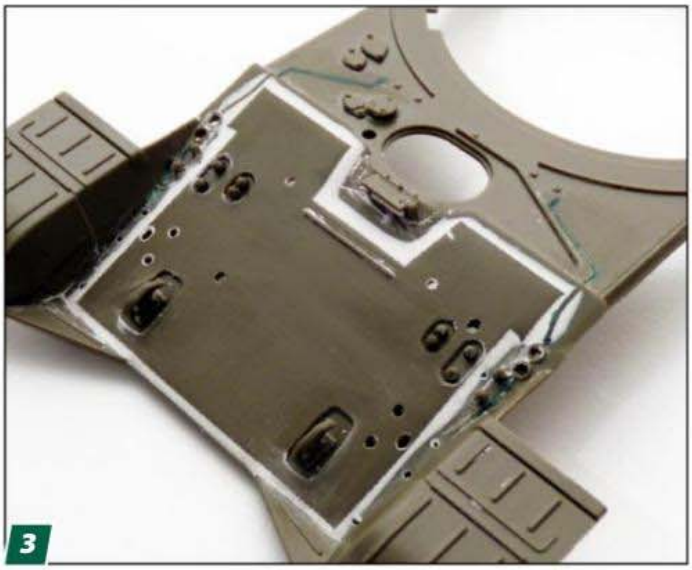
I installed an unditching log — even in testing stages, it would be useful in replacing track links. I replaced the kit-supplied log with a tree-branch clipping, cutting off



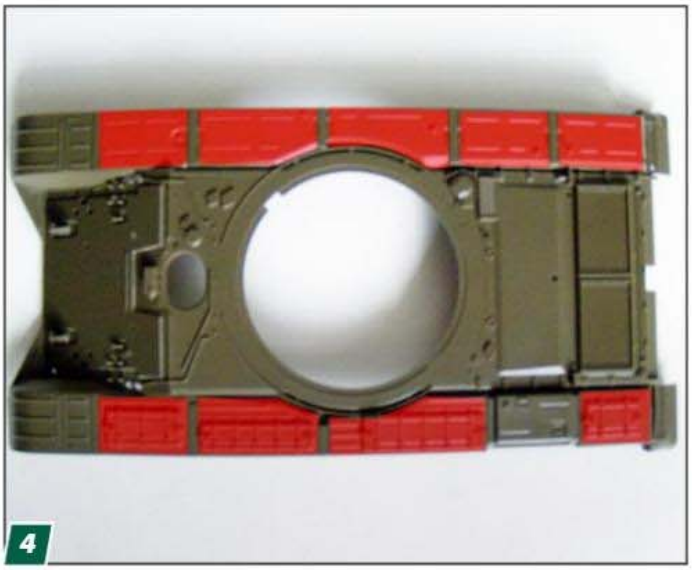
With one-piece "rubber band" tracks, a good place to hide what might be a difficult join is under the fenders.



The kit part for the unditching log looked like a stick of plastic. A stick from a tree branch looks more like a log.



Early T-72s did not have appliqué armor on the glacis plate. Putty can make this unwanted extra layer disappear.



Areas marked in red will be removed from the fenders.

stems with a razor and roughing it up by rubbing it on concrete. For tie-downs, I soaked white string from the kit in Winsor & Newton burnt umber artist's oil for a half day. Then I lashed the log down, ***2***.

Upper hull and fenders

According to my read on it, here's where modifications necessary to model a turn-of-the-'80s T-72 begin:

The frontal armor plate simply shouldn't be there. It was an add-on years later. To save a trip to the aftermarket, apply putty to the edges of the raised armor plate, ***3***. Use enough to make it look like just one solid plate with no addition, but be sure not to cover locator holes for later attachments.

The fenders require some scratchbuilding for this version. The T-72 fenders carried diesel fuel in removable tanks. I had to cut the fenders clean off, as they are part of the hull molding. Sprue cutters did the job, but any good blade would do. Just make sure you don't damage the hull, and don't cut off the very front or rear of the fenders where no fuel tanks are located. Also, cut around the exhaust portion of the fenders, ***4***.

After filling a gap between the upper and lower hull (you can use sheet styrene), I used the cut-off kit fenders as templates to cut replacements from paper-backed wood veneer: 6.28 inches long and .60 inches wide.

I scribed the antiskid lines between the bracket locations. Then I tacked the fenders in place with super glue and followed with Elmer's Glue-All for strength, ***5***. I made new fender brackets from veneer and sheet styrene, ***6***. I used a strip of plastic I had cut from the kit's unused side skirts to put a lip on the fenders' outside edges, ***7***.

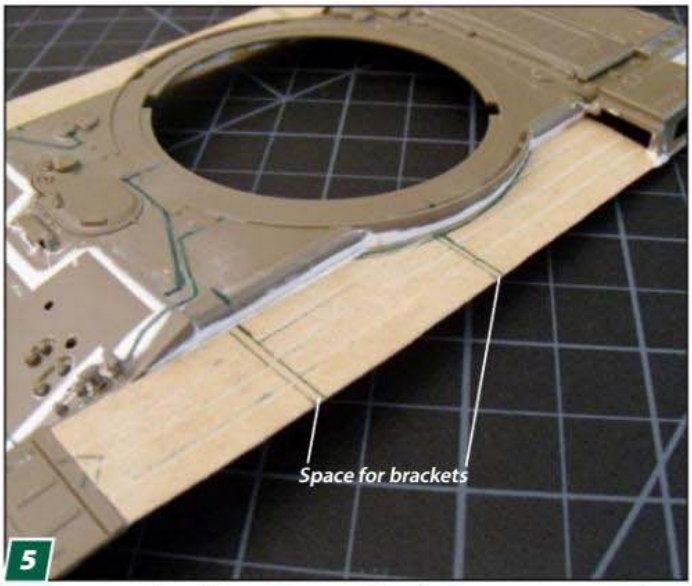
Fuel and firepower

I made two fuel tanks using the veneer to build boxes the same height as the fender brackets and the width from the upper hull to the outside edge of the fender, ***8***. Scribe the antiskid lines into the top panels before you glue (makes things easier). I cut some of the molded detail from the kit parts and

$50,000

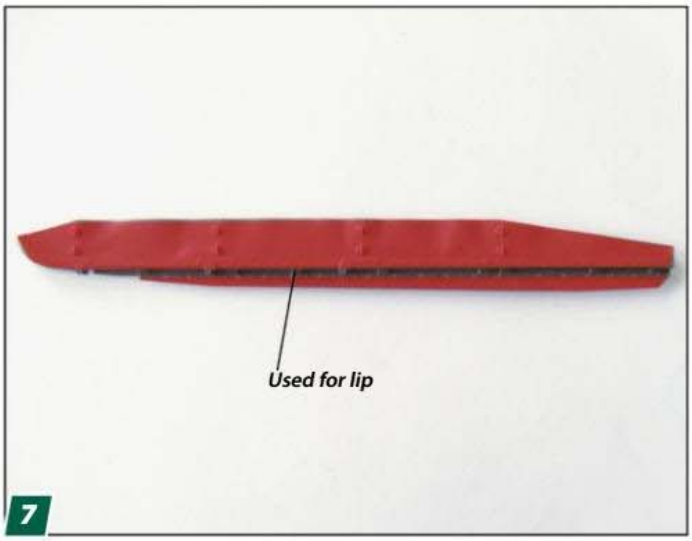
Price of a used T-72 + $15-25K shipping

– Wired

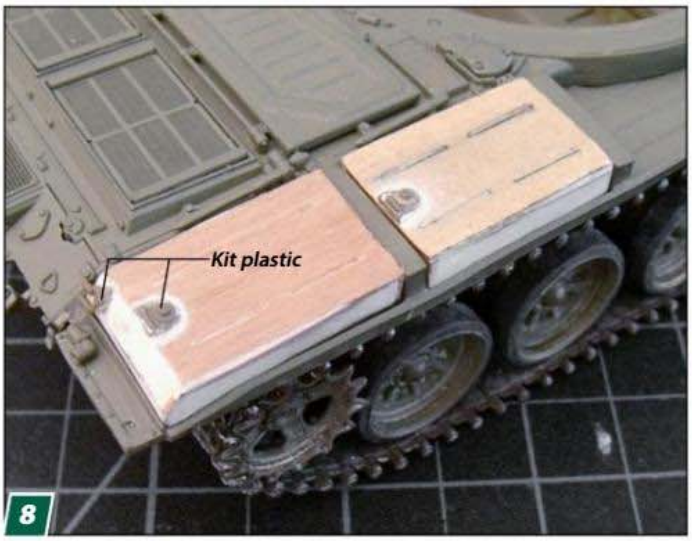


Fenders are replaced by wood veneer. Gaps in the grooves account for fender brackets to come.

Fender brackets are scratchbuilt from veneer and sheet styrene.



Unused side skirts provide a strip of plastic with molded bolts — perfect for lips at the fender edges.



Scratchbuilt fuel tanks can be detailed with bits sliced from the corresponding kit parts.

transplanted them on my scratchbuilt tanks.

Modifying the turret for my version is straightforward: I left off the smoke dischargers, 12.7mm machine gun, snorkel, dazzler, and all the storage and toolboxes. I kept the infrared light, but you could leave it off as well.

To detail the light, I cut out the center where the lens would be and replaced it with a piece of clear plastic. For the light's interior, I took a piece of foil gift-wrap and added some Tamiya clear red (X-27) and clear blue (X-23) to darken it to violet, then followed with two layers of Tamiya smoke (X-19) so it wouldn't look too shiny, ***9***. I used the same foil with the lights on the commander's cupola and rear searchlight but used only smoke, no red or blue.

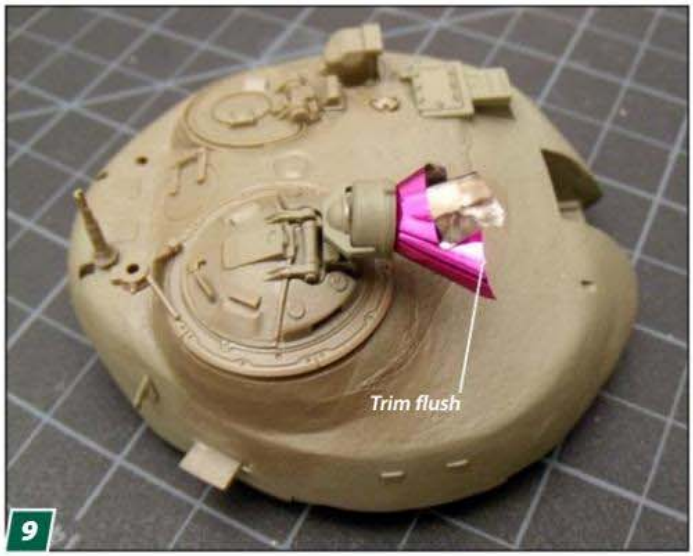
But before you start gluing details to the turret, get out the putty. The turret is the wrong shape — too flat in the front near the main gun. It should flare out more; I didn't have exact specifications for it; I just added a few millimeters of putty and sculpted it, ***10***.

The mantlet lacks detail. I cut the cover to create irregular edges, following the molded fold lines on the kit part. (Don't make any jagged cuts that will be difficult to smooth out.) After the cuts were made I positioned the barrel, elevated as on the box art, and glued it in place. When the glue had set, I used putty to fill and shape. It doesn't have to be smooth; any wrinkles and creases between putty applications will look like fold lines. Where the putty meets the turret, be sure to sculpt clean edges.

Once you are happy with the mantlet, split a facial tissue into one ply (two-ply tissue is too thick) and soak it in a 1:9 mix of Elmer's white glue and water. Then wrap tissue around the mantlet, ***11***. Be sure to keep any overlap at the bottom of the mantlet, not the top. You can leave it wrinkled if you like. Once you're happy with it, cut off the excess. After it dried, I used a rubber band for the ring you see in pictures of the tank, ***12***.

I brush-painted the mantlet before the final coat of paint on the turret; any smudges would be hidden when I painted the turret. To create the khaki color seen on the box art, I mixed equal parts of Testors flat green (No. 1164) and light tan (No. 1170) with just a drop or two of Floquil weathered black. Brushing the mantlet cover, I was careful to avoid oversaturating the tissue so it would keep its texture.

On the hatches are two vision blocks big enough to warrant detail. I colored them

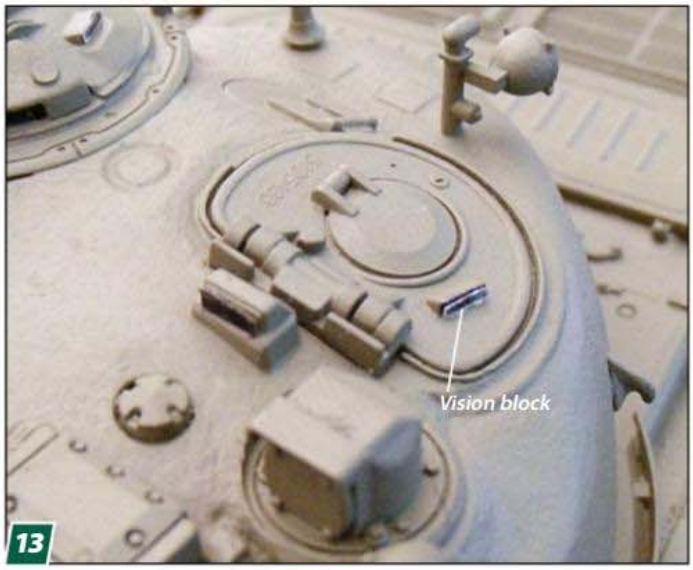


Party on the cupola! Foil gift-wrap provides a glow inside the infrared light.

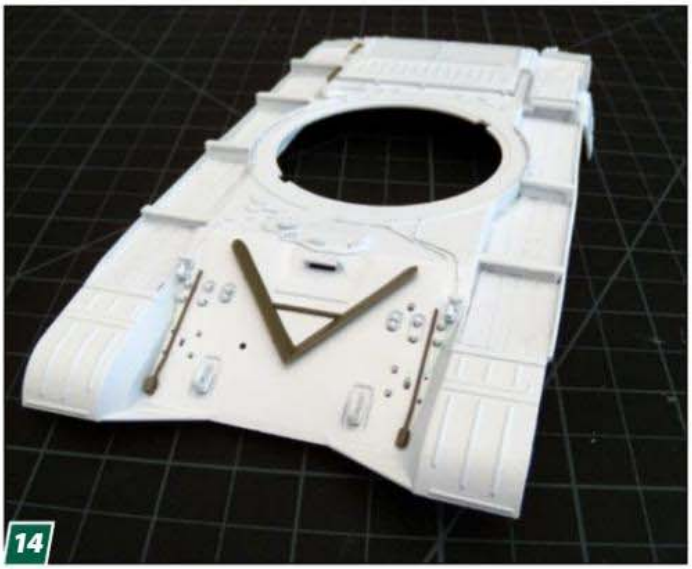
Sculpting putty on the turret front corrected its shape.

Putty on the mantlet cover made it look more like canvas, especially with a covering of glue-soaked tissue.

A little rubber band comes in handy to gather the mantlet cover at the end of the barrel.



A Sharpie pen and a bit of clear acetate are all that's needed to dress up a vision block.



A coat of light gray primer gives uniformity to the various materials of wood veneer, styrene, and kit plastic.

Piling up dust in corners and recesses makes this T-72 look like it's been somewhere.

Rubbing high spots with a soft-lead pencil replicates worn metal and chipped paint.

Notice how there's more dust at the front and around the commander's cupola.

Meet Michael Grochola

Michael, from Bridgeview, Ill., earned a master's degree in architecture while minoring in history. He says, "Thus, it should come as no surprise that I have a love of military history and building things. Lucky me — I get to make scale models of buildings in class and armored vehicles at home. When I'm not at the workbench building something, I'm designing something for a client."

with a black Sharpie pen and finished them out with thick, clear acetate (such as that of clamshell product packaging), ***13***. The antenna is copper wire.

Easy paint and decals

I don't usually prime my models, but with all the different materials, including wood veneer, I thought it best, ***14***. Then I got out my brushes — the ones with handles and bristles, not airbrushes — and applied the first coat of Testors Model Master Acryl olive drab. Painting by hand means one coat is not enough; it will need two or three coats, depending on coverage.

Decals? There *are* no stinking decals! Seriously, you just don't need them. The kit provides a set, but as a test bed this vehicle needs no markings. So you can put all that stuff away.

Weather forecast: dry and dusty

If this tank is operating in Afghanistan, it should look like it — sun-bleached and dusty.

I started with light washes of Winsor & Newton burnt umber and burnt sienna, then followed with an overall wash of Floquil grime. Finally, a selective pinwash of Floquil aged concrete went to areas where dust would be most likely to accumulate: around the commander's cupola, the front and rear fenders, the frontal hull, and especially the road wheels, ***15***.

After the washes, I used a graphite pencil (any pencil with soft lead will do) and randomly scratched or rubbed marks where you'd expect paint to be chipped and worn, ***16***. I smeared some of the marks with my fingers to vary the effect.

I sprayed Krylon acrylic clear matte (No. 1311) straight from the can to seal the washes and graphite in place, then gave the T-72 a generous dusting of lighter earth-tone pastels, ***17***.

In the end, I was able to create an unusual variant of the ubiquitous Soviet T-72 tank, improve my scratchbuilding skills through experimentation and practical application, and finally complete my first-ever build of a modern armor subject. **FSM**

"Dolly Parton"

U.S. Army nickname for T-72s with upgraded turret armor

By Mark Savage

I can see clearly now ...

Nobody likes a foggy canopy made messy by super glue. So what better way to come clean than with toothpaste?

I've found that regular toothpaste, not gels or anything with sparkles in it, works just fine. Put a small dab on a cotton swab and rub it on the fogged area. Rinse the canopy or clear part in water and give it a final polish with a dry piece of an old cotton T-shirt. Bingo, you can see clearly now!

– Gary Dudley
Indianapolis, Ind.

Save those contact cases

Do you have a contact lens wearer among your family or friends? Ask them for their contact containers before they toss them in the trash; the cases have multiple uses.

They are perfect for holding super glue or paint, and the foil tops are thick enough that you can use them for seat belts in aircraft or cars.

I have cases of various sizes. You'll find a use for them all!

– Steve Lucianetti
Hollywood, Md.

Tea for two, or more uses

Living in the desert Southwest I drink gallons of iced tea each day, leaving me with a lot of washed-out tea leaves.

Cleaning my pitcher recently, a tea bag shredded. For the first time, I studied the used tea leaves. Immediately, I saw ivy on a 1/35 scale building wall — but that was just the beginning.

You can use old tea leaves either washed out (used) or dry and fresh. However, unless you want a specific dark-brown effect, do not use water-based adhesives or paint with the dry-and-fresh variety. The tea leaves will become damp and stain whatever they touch dark brown. On the other hand, well-used tea leaves have little or no ability to stain.

Tea leaves work in nearly any scale, from 1/160 scale (N scale model railroading) to 1/35 scale dioramas. But they must be adjusted to scale. What works as ivy leaves in 1/35 scale becomes a much larger item in N scale.

The used leaves can be employed wet or dry. Wet, they tend to clump — great for scattered dead leaves blown into a corner (a fall or winter scene). Dried, they can be applied singly or in small groups and arranged with a dry, soft brush before being hit with adhesive.

When I want ivy leaves on scale walls, I either dye the dried, used tea leaves with the appropriate green or use them as dead ivy.

Attaching these leaves to building surfaces is easy, if a bit odd. First, I lay down thin lines of super glue. Then I gently drop the leaves on the glue, blowing through a drinking straw to direct loose leaves toward the super glue.

For bigger areas, any white glue will work. I prefer the clear-liquid scenic cement sold for model railroading.

In summer, the best thing about using tea leaves may be the iced tea that gets them ready for your display — but, wet or dry, fresh or used, tea leaves have more uses than I've discovered so far.

– Ned Barnett
Las Vegas, Nev.

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Through melting sprue!

My days of making aircraft wires out of sprue by melting it with a candle are over!

Having received a 3-D printer last year, I've had a lot of success with it in my modeling. While it has not replaced buying kits for full-size models, it has helped with detail parts for those kits. An unexpected benefit happened the other day when I went to change the printing medium — polylactic acid, or PLA.

The element must heat up to get the old medium out and the new one in. Instead of allowing the medium to auto-feed, I pushed a little of the medium forward. When the machine finally did feed, it started squirting excess plastic.

I grabbed this plastic with tweezers and began to pull. The result was the thinnest stretched plastic I have ever seen. I continued to pull and ended up with about 16 feet of the stuff. All but the initial plastic was fine and consistently sized, about half the thickness of a human hair!

Now I have enough plastic line to make antenna wires, fine ship rigging, or handrails. If I need more, I simply repeat the process. But three cautionary notes:

A 3-D printer will make excellent wires for aircraft so you won't have to bother with melting sprue anymore.

1. All printers are different. Get to know yours before you try this!

2. Use anything but your *very* burnable fingers to grab the plastic. You will be close to the hot business-end of the printer.

3. Since the plastic line is so fine, unless you are careful you'll snarl and tangle it quickly just like human hair.

Also, leave yourself room to either lay it out or have another person cut it into sections as you pull it out.

– Todd Wardwell,
Glenolden, Pa.

HK Models' big, beautiful B-17

One of the most famous aircraft, the B-17 Flying Fortress, has been kitted by many companies in smaller scales. But a 1/32 B-17? Are you kidding me?

Actually, this is HK's second release of the mighty Fortress in this scale — the first was the later G version. HK modified its G kit to include the non-staggered waist windows and early tail gun position to allow the earlier B-17E or F to be built. There are three markings options in the kit — one E and two early Fs, including *Memphis Belle*. All include minor detail changes — especially in the nose glass. Not mentioned are parts still in the box for the G — some of which would be usable for a late F.

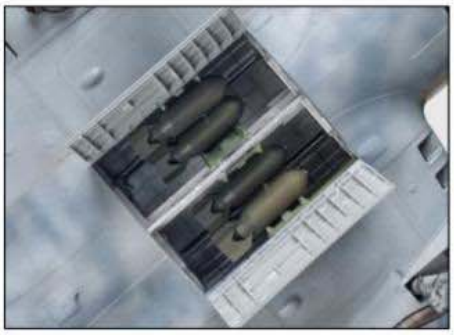
There are a lot of parts in the huge box — close to 600. Prepare for many hours of clipping and prepping. Because the model is so big, and the attachment points are secure and well designed, I decided to finish the wings, stabilizers, and fuselage separately and mate them at the end.

The interior takes up most of the build time, with loads of detail in every compartment. The instructions for the nose are especially complicated — make sure you're looking at your selected version. HK has included resin ammunition chutes for the many machine guns — but without positive alignment to the gun breeches, they are a bit hard to mount correctly. All the gun barrels are separate except those mounted in the nose, allowing attachment after finishing. I modified the nose guns using metal beads to allow the barrels to be attached after painting. There are no alignment guides for any of the floor-standing ammunition boxes, so careful placement is up to you.

In general, the fit of the interior parts is outstanding — there may even be too many attachment points. I removed the pins on the side wall of the cockpit, for instance, as they aren't necessary for placement. Test-fit frequently and you won't have problems. I had to trim the sides of the bomb-bay walls, but that was the only significant problem.

Because this is such a large, detailed kit, there are numerous ejector-pin marks in the fuselage side and bulkheads. Many won't be seen, but others will need to be filled or scraped away. I attached the nose and tail halves to each fuselage half prior to assembling the fuselage in the hopes that it would prevent problems with alignment of the large, circumferential seams. That worked for the most part, but fit overall was good enough that it might have been OK to attach the nose and tail as units anyway. The upper fuselage decking on my example was warped, but gluing and clamping a section at a time straightened it.

Details abound in the rest of the kit as well. The bomb bay has a full load of 500-pound bombs available, although there are no marking decals for them. The bomb-bay doors are unfortunately a maze of ejector-pin marks that are difficult to remove. The nose and ball turrets are detailed inside as well. For some reason, the center structure of the top turret does not fit all the way down onto the gun shelf, but it doesn't matter — it fits inside the mechanism just fine and looks great. Make sure the ball-turret ring and internal support are firmly glued in place to hold the ball turret. Gravity holds the top turret just fine. However, the ball turret is missing ammo cans attached



to the turret support. The engines also are nicely detailed and fit together well.

The gear bays are multipart assemblies that include side wall detail. Make sure to carefully clean up and tightly clamp these assemblies so they fit inside the inner engine nacelles without interference. There are optional parts for retracted and extended landing gear, and the kit includes a substantial mounting bracket if you desire to fix it to a wall. The fit of the extended gear legs into the bays was very tight — so tight that they aren't glued in place. The wheels are a tight fit on the legs as well. Detail purists may wish to replace the tires, as there is an odd, raised tread pattern where the tire halves meet.

The wings are huge parts that fit together reasonably well. I needed filler at a couple of spots on the leading edge and at the nacelle halves. HK incorrectly molded trim tabs on both upper aileron halves and none on the lower halves. In reality the left aileron has a trim tab and the right does not, so I filled the upper right tab and scribed the lower left one.

All the clear parts fit beautifully, and, thanks to the timely release of Eduard's pre-cut mask set, they were installed and ready to paint in no time. I used the unused radio window and extra waist windows in the kit as masks. Holes for the doors were masked with makeup applicator foam.

I used Tamiya olive drab (TS-5) and neutral gray (AS-7) spray cans to quickly and evenly apply a base coat. These were followed by patchy applications of lightened versions of both colors on the entire airframe, along with faded olive drab on the fabric-covered ailerons, elevators, and rudder.

Decals went down beautifully. The only minor issue is a bit of translucence of the white on the national insignias.

I assembled all the major airframe components after finishing was complete. Fit of the elevators was completely satisfactory. However, the wings only fit well on the bottom, while the wing root was a bit raised on the top surface. On the plus side, the slot and groove attachment method is very sturdy. I didn't use any glue.

HK's B-17 is a huge canvas for creative weathering and finishing techniques, and I could have spent many more hours on that aspect alone. As it was, the kit took 94 hours. HK's Flying Fort builds into an exceptional replica that is achievable by modelers with a few kits under their belt. Bring on the Lancaster, HK!

– Chuck Davis

Kit: No. 01E05 **Scale:** 1/32
Mfg.: HK Models, www.hk-models.com
Price: $300 **Comments:** Injection-molded, 565 parts (10 PE, 14 resin, 5 metal screws), decals **Pros:** Engineered for strength and ease of assembly; good markings selection; tons of detail; nice clear parts **Cons:** Many ejector-pin marks; tires have odd tread pattern; poor painting diagrams

Rye Field Model M1A1/A2 Abrams

Rye Field Model stays on its A game with the first all-plastic Abrams kit with a full interior. The kit includes options to build an M1A1 or A2, as well as such nice little extras as coolers, ammunition boxes, spare road wheels, and clear water bottles.

The decals provide four marking options, two for the A1 and two for the A2. The main markings are clearly laid out in the instructions, but there is a sheet of smaller warnings and labels with no clear instructions on their locations; finding good reference photos would be a big help. There are other errors or omissions in the instructions, but, to Rye Field's credit, a revised version of the instructions is available on its website and Facebook page. I highly recommend using the revised instructions, which are much clearer and have a few steps that were missed in the original instructions.

The build starts with the main gun and turret. The latter went together well as the parts fit great. If you display the interior, you'll want to fill the hollow backs of parts for the computers and other equipment.

Machine guns and small details on the outside of the turret build easily and have great detail, such as slide-molded barrels. I would suggest not attaching them to their mounts until after painting, as their mounting pins are thin and easily broken.

The main body of the tank goes together pretty quickly. The tub-style lower hull has great molded detail all around with fine weld seams and rivet details. I chose to make the tracks workable, since they need so much work anyway. You do have the option to leave the suspension static, though, by leaving the small keys on the torsion arms in place. However, I will warn you that the torsion bars are scale-thin and can break if you are rough with them during painting.

After the main hull and driver's compartment come the engine and engine bay. Both have full detail: The engine can be left removable and the rear doors can be made workable, presenting interesting display or diorama options.

The last major area of the build is the tracks. Though they don't cover much area on the tank, about half of my build time was spent on them. They flowed and moved nicely when finished, but the number of parts turned the task tedious.

Tiger Model Nagmachon

To make use of obsolete Centurion tanks, the Israeli Defense Force replaced the turrets with a casemate covered in reactive armor. The result was a unique, well-protected personnel carrier known as the Nagmachon.

This kit of the early Nagmachon is Tiger's second kit of the vehicle; it released a late version with the so-called doghouse (kit No. 4616) last year.

Cleanly molded in tan plastic, the kit features detail in the driver and fighting compartments including seats and wall fittings. The kit also includes photo-etched (PE) detail parts, vinyl tires, colored clear parts, and metal wire.

The road wheels comprise plastic wheels and vinyl tires. The tires need to be aligned on the wheels and allow clearance for the track guide horns. Don't super glue the tires to the wheels as indicated in the instructions. The detailed, individual-link tracks are not workable and need to be cemented together. All of the hatches are separate parts and can be posed open or closed.

The kit provides chain for use with the side armor skirts, but only a single vague diagram shows its installation. Checking photos, it appears the chain wasn't always used, so I omitted it.

The reactive armor blocks impressed me; not only do they look good, there are several shapes and sizes. Better yet, they installed easily.

The clear parts come in three colors, but only two are used — clear for the headlights and blue for ballistic glass and periscopes.

I painted with GSI Creos Hobby Color acrylics. Decals provide markings for a single vehicle; they went on well with a little decal solution.

My primary reference was *Nagmachon Heavy APC: Centurion Based APC in IDF Service – Part 2* (Desert Eagle, ISBN 978-965-7700-01-3).

I completed Tiger's Nagmachon in 42 hours. It was an enjoyable build, and I am planning to build the company's other Nagmachon. Modelers with experience assembling detailed kits will have no problem with this one.

– Jim Zeske

Kit: No. 4615
Scale: 1/35
Mfg.: Tiger Model, www.tiger-model.com
Price: $84.95 **Comments:** Injection-molded, 741 parts (28 PE, 38 vinyl, wire, chain), decals **Pros:** Detailed interior; good decals **Cons:** Rubber tires; vague instructions for chains

Kit: No. RM-5007
Scale: 1/35 **Mfg.:** Rye Field Model, www.ryefield-model.com
Price: $84.95 **Comments:** Injection-molded, 2,108 parts (112 PE), decals
Pros: Fine details; great little extras; several build options; decals performed well
Cons: Poor instructions (and none for one sheet of decals); some decals too tiny; overly complicated tracks

Rye Field's new Abrams is a great kit packed with detail. Don't let the number of parts deter you; it's a challenge for experienced modelers, but can be tackled by intermediates as well. I spent nearly 60 enjoyable hours on it, though the tracks did add a bit of time. Just put on a good movie (for me, *Mad Max*) and the time will fly by.

– Chris Cortez

Zvezda Su-33 "Flanker-D"

The Su-33 is an upgraded Su-27 Flanker built for carrier deployment. With the breakup of the Soviet Union, only 24 were built.

Don't mistake this as a mere reissue of Zvezda's earlier kit; it is a new tool. There are almost 250 parts with fine engraved panel lines and surface detail. You have several building options: open canopy and speed brake; wings and tail planes folded; or gear-up in-flight (stand not included). You also get a boarding ladder, wheel chocks, and two pilots (one seated and one standing). A set of R-27R and R-27T long-range missiles and R-73 short-range missiles are provided. Decals are supplied for two aircraft, along with all the stencils.

The cockpit side consoles and instrument panel rely on decals for details. The ejection seat looks good and has an optional seat back if you're not using a pilot.

The main gear bays need to be assembled before joining the upper and lower fuselage halves. It's a little tricky holding the four walls in place during gluing, but the fit is perfect. The same applies to the full-length intakes. The parts fit together well; it's just a little difficult holding them in perfect alignment while gluing. The upper and lower fuselage join at panel seams.

Some vertical surfaces, especially behind the cockpit and on the engine sides, have rough, pebbly texture. I sanded it smooth but needed to rescribe some of the panel lines. I checked the rest of the airframe and deepened some of the lines that were a little shallow or soft.

Zvezda paid particular attention to the landing gear — 11 parts go into the nose gear alone! Detail here is sharply molded and fit is excellent. I appreciated the detail in the gear wells also. Mounting tabs on the main gear doors are delicate; they were broken on one of the doors in my sample.

The weapons trees are a carry-over from Zvezda's Su-27 kit and include parts that aren't used here. You get six R-27R radar-homing and two R-27T infrared-tracking long-range air-to-air missiles, plus four R-73 short-range missiles. I found out too late there weren't enough stencil decals to go around.

My biggest area of uncertainty was with the colors for the camouflage. I ended up using Testors Model Master Flanker colors — pale blue, medium blue, and blue/gray — but they look slightly washed-out compared to references. The decals performed flawlessly, but be prepared to spend some time; there are a lot of them.

Even with the number of parts, some very tiny, assembly was painless and aided by excellent fit and engineering. If I had to do it over again, about the only thing I would change is to take more time to hone my camouflage skills. I definitely recommend Zvezda's naval Flanker!

– Mike Klessig

Kit: No. 7297
Scale: 1/72 **Mfg.:** Zvezda, www.zvezda.org.ru **Price:** $25
Comments: Injection-molded, 247 parts, decals **Pros:** Excellent engineering, fit, and details **Cons:** Some pebbly surfaces and faint panel lines

Tiger Model Panhard VBL

Developed in the 1980s, the French Panhard VBL is a small, all-wheel-drive amphibious armored car still in service with the French army today. Tiger Model has just released its second version of the VBL, this one sporting a Milan missile launcher.

While the parts have excellent surface detail, they do show somewhat heavy mold seams. Parts cleanup adds some time to the build. But the results are worth the effort.

The tires are molded in soft vinyl and include both directional and nondirectional tread patterns. A small photo-etch (PE) fret has a grille for the hood-mounted fan, bins for external gas cans, and straps for some of the onboard equipment. Clear parts are provided for all the windows and lights, and the crew compartment features all the major interior fittings. However, decals provide for only one French vehicle.

Assembly starts with the interior. Tiger Model has done a good job of reproducing the raised-disc antislip rubber that covers most of the floor. Decals are provided for the instrument panel as well as several placards. I suggest you test-fit the dash when adding Part A33 in Step 2; it has to mate with Part A39 on the center console, and I had to tweak the positions of both to fit.

There is no mention of adding the gas filler tube (Part A22); it just shows up in place in Step 3. Also, the diagram for drilling holes in the floor in this step is incorrect. You need to drill out two holes that are farther inboard than the ones shown.

The main interior color of the French vehicles and most of the imports seems to be NATO green. The exterior camouflage is mimicked on the insides of the doors. You can find many good reference photos of the interior on the Internet.

Step 5 has you glue the upper and lower body halves together. I left mine apart until I had finished all the painting. The fit is good, and you can place the parts together to paint the exterior camouflage. Note in the instructions that if you plan on closed doors, do not add Part B21 to the doors. While all the doors and hatches can be posed open or closed, none are hinged.

Decals were applied to a coat of Vallejo polyurethane clear gloss, and they responded well to Microscale Micro Sol. I painted the various lights with Vallejo Model Air chrome silver on their backs. They were installed with PSA glue and painted Tamiya NATO black. Because the acrylic paint does not etch the clear parts (don't try this with enamels), you can remove paint with a toothpick once it's dry.

While I applaud Tiger Model for providing real wire for the tow cable, try as I

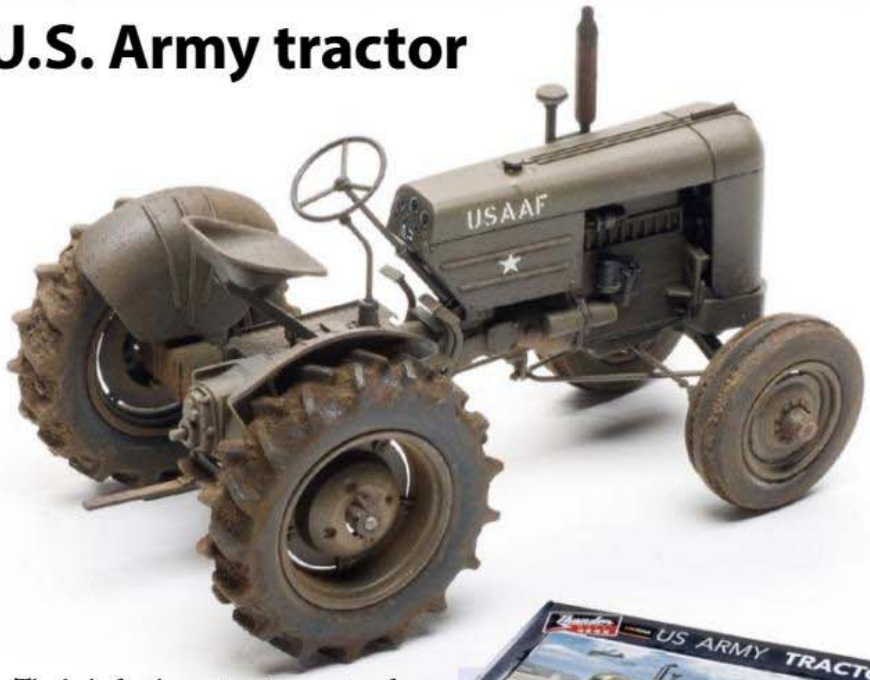
Thunder Models U.S. Army tractor

During World War II, the U.S. Army used several models of Case tractors for construction and maintenance. Thunder Models kit includes two cleanly molded plastic trees, a small photo-etched (PE) fret, and four vinyl tires. The instructions are clear and uncluttered, but there are a few places where parts go unnumbered; fortunately, they are easy to find. A color guide showing one civilian and two military tractors refers to Ammo of Mig Jimenez paints.

I started by building as many subassemblies as possible including the motor, gas tank, differential. Once those were together, construction progressed quickly.

Step 1 requires hex bolts (Part X1) to be shaved off the sprue and glued to a connection between the engine and transmission. I used a hex punch-and-die to make them from sheet styrene instead. The instructions recommend a string or wire to replicate the fan belt, but I used masking tape.

I was worried about the rigidity of the thin PE footplate supports, but once bent, they performed perfectly. Rather than gluing the supports to the plates as shown in Step 7, I attached them to the body first. This made aligning the parts easier. I glued Evergreen square strip to the body and quarter round to the supports. This modification provided more gluing surface to attach the footplates.



The hole for the seat spring was too far back, so I filled it and drilled a new one.

The decals were a little thick, but went down without silvering. The gauges were hard to see on the decal sheet, but once they were in place over a black undercoat, the detail showed up well enough.

I spent just 12 hours building and painting the tractor, and it would make a great change of pace kit or weekend build. Painting and weathering brought out the detail. This little model will turn heads.

– Mike Scharf

Kit: No. 35001
Scale: 1/35 **Mfg.:** Thunder Model, www.thundermodel.com **Price:** $39.95
Comments: Injection-molded, 87 parts (9 PE, 4 vinyl), decals **Pros:** Easy build; good detail **Cons:** Prominent mold seams on large tires

Kit: No. 4618
Scale: 1/35 **Mfg.:** Tiger Model, www.tiger-model.com
Price: $63.99 **Comments:** Injection-molded, 265 parts (8 PE, 8 vinyl, 1 wire), decals **Pros:** Detailed crew compartment; posable doors and hatches; decals for stencils and instruments; clear parts for lights and windows **Cons:** Stiff wire for tow cable; only one set of markings; no directions for interior painting

might I could not form it into a shape to fit properly. So, I left it off.

I spent about 23 hours on my VBL. Cleanup of the parts, detail painting of the interior, and the complex paint scheme took most of the build time. Checking dimensions on Panhard's website (www.panhard-defense.eu) shows it is about 4 scale inches too tall, but length and width match perfectly. The model fills an important gap in a modern armor collection.

– John Plzak

Panda Hobby Marder I (SdKfz 135)

Seeking a more-potent self-propelled antitank weapon, and having acquired more than 300 French *Tracteur Blindé* 37L tractor/personnel carriers with the fall of France, the Germans fitted 170 of them with 75mm PaK 40 antitank guns. The new designation was SdKfz 135, the *Lorraine Schlepper* that some, including kit manufacturer Panda Hobby, call the Marder I.

The kit parts, like the full-size vehicle, are small. The box cover has a good illustration that can help with some of the parts' placement. The track links are *very* small; extra care is needed to cut them off because they deform easily and take flight readily.

The kit provides a jig for track assembly, but it's difficult to use without gluing links to the jig. Instead, I used double-sided tape and glued them together in a long strip. Then I used a blade to shave them off the tape in one long strip. I used 108 links on each side, creating a sag, but with no spares.

Hull parts were nicely molded, with good detail and no visible sink holes; they went together well. Be careful of parts A-21 and A-20; two small tabs at the top of the hull sides can bend or break off easily.

The instructions are straightforward. The only discrepancy was for parts C-11 and C-12, which should be transposed. Before gluing part B-15, test-fit and make sure that the PE muffler shield fits properly after bending on the kit-supplied jig.

The gun comprises many small parts with good detail, and it goes together well. The interior has a full ammo rack and nicely molded ammo, but each piece needs to be fitted before painting. Aligning the barrel and shields is fiddly.

I chose to follow the box art for painting. There are four other choices supplied on a separate sheet. Only two decals were used; they settled well on a coat of Testors clear gloss.

Because of the smaller parts, I recommend this kit for more-experienced builders. It's a nice-looking vehicle despite its size — remember David and Goliath.

– Ted Horn

Kit: No. PH-35006
Scale: 1/35 **Mfg.:** Panda Hobby, www.panda-hobby.com **Price:** $45.95
Comments: Injection-molded, 402 parts (11 PE), decals **Pros:** Good fits, fine details **Cons:** Fragile and tiny track links; tiny track jig not useful

Airfix P-40B Warhawk

Although it was a prewar design, the Curtiss P-40 Warhawk continued to be used by most of the Allies on every front throughout World War II.

Numerous manufacturers have recently released kits of the Warhawk, with Airfix's P-40B being the latest. Inside the sturdy box are three sprues molded in medium gray plastic, and a fourth sprue holding crystal-clear parts. Panel lines and details are deep and well defined, and the fabric effects on the rudder, elevators, and ailerons are subtle. Unfortunately, I did not realize that the rudder trim tab is only engraved on the starboard side until after I had glued it to the model.

The landing-gear doors are a bit thick, but trailing edges of the flight surfaces look good. There are ejector-pin marks in visible areas, such as the gear wells and doors, and many more that will be hidden in the rear fuselage. Options include parts for raised or lowered landing gear, open or closed canopy, two windscreens, open or closed cowl flaps, a square or a rounded pilot's seat, a drop tank (not mentioned in the instructions), and a choice of two markings: the plane George Welch flew at Pearl Harbor or a Flying Tiger flown by R.T. Smith.

The 12-page instruction booklet is straightforward, guiding you through the build one or two pieces per step. Final parts locations are shown in red in the following step. Color callouts are for Humbrol paints, although that is mentioned only on one line of fine print in the preliminary assembly instructions.

Like the real aircraft, cockpit detail is sparse. Decals for the instruments, switch boxes, and a few placards are slightly oversized for their locations. However, I used all of them except the instrument decal, finding it easier to paint the entire panel.

The floor is curved as if it is the top of the wing. In a unique approach, the remainder of the cockpit builds up like a cage; the bulkheads form the front and rear, while the stringers and formers make up the sides. The instrument panel/rudder pedals are supposed to drop into the completed cage, then turn to lock into place. I don't care for this system — I never got the proper alignment. The cockpit appears to be the proper depth for this scale.

I should have thinned the fuselage sides, but I clamped them together around the cockpit. Excessive pressure distorted the nose, which led to problems fitting the chin piece (Part B04) and gun troughs (parts C04 and C05). I recommend fitting all five pieces together before gluing any of them to the nose ring (Part B03).

There is some play in the separate wing roots (parts C02 and C03). I did not match them perfectly, and that caused one side of the wing to be tight and left a slight gap on the other side. It also meant that the wings were not level. It may be easier to build the wing first and then align everything at once. I had to trim and putty the landing-gear fairings (parts B10 and B09) to achieve an acceptable fit.

The elevators were a press fit. I wish I had glued them, though; I kept knocking them loose while handling the model.

I really like the separate wheel hubs and tires, which made painting easy. However, the main tires look like they could use some more air.

The mounting plugs on the wing guns are larger than the holes into which they should fit. I trimmed off more than I should have on one and had to replace it with tubing after I pushed the original inside the wing.

I used Testors Model Master neutral gray and GSI Creos Mr. Color olive drab, and detailed with a simple acrylic sludge wash. The decals were a little thicker than most, but they reacted well to Microscale Micro Set and Micro Sol solutions.

Airframe construction was accomplished in about 10 hours, while painting, decals, and a small amount of weathering took another 10. With final assembly, it took just under 22 hours to complete my P-40. Matching published dimensions, the model's scale is right on.

I thoroughly enjoyed building this kit. Any modeler with a kit or two under their belt should be able to breeze through it. The toughest thing about the Airfix P-40 is finding another one to build as a Flying Tiger!

– Andy Keyes

Kit: No. A05130
Scale: 1/72 **Mfg.:** Airfix, www.airfix.com
Price: $26.99 **Comments:** Injection-molded, 106 parts, decals **Pros:** Subtle fabric detail; nice cockpit with properly curved floor; well-molded canopy
Cons: Ejection-pin marks and mold seams

Free desktop wallpaper
Download a desktop wallpaper of Zvezda's 1/72 scale Su-33 "Flanker-D" built by Mike Klessig for Workbench Reviews and featured on p. 57.

Online Extras
Want to see more photos of Chewie's AT-ST featured on p. 26? Get a 360-degree tour of Bandai's combat-weary stompin' machine online.

New Product Rundown
Learn more about a kit before you buy. Aaron Skinner and Elizabeth Nash host a twice-monthly review of the newest models where you get to see what's inside the boxes.

By Mark Hembree

In the December 1999 *FSM*, Al Jones reviewed Hasegawa's 1/48 scale Bf 109K-4. He recalls using a decal for the spiral on its spinner. "Usually the spirals are just 360 degrees, one time around," he says. "The bottom end of the spiral needs to be placed at the bottom of the spinner next to a prop blade."

Spirals on spinners

Q How does a person paint (in 1/72 scale) the spiral seen on the propeller spinners of Bf 109s? The spinner is more or less a dome, which isn't conducive to decals (and I don't see any specialized ones on eBay). The spiral (in green and white) needs to be neat and orderly, and the process of finding a way to mask the tiny part is driving me mad. It seems that a mask would need to be spiral shape, but how would I make such a thing?

– Ron Rodenburg, Centerville, Ohio

A There are a lot of different, uh, spins on the best way to do this.

I've heard some people say they chucked a spinner in a drill or motor tool, spun it, and painted the spiral with a brush. I'd feel pretty lucky if I pulled that off on the first try.

Some kits provide decals, and you can buy decal sheets that include the spiral. I've heard many people say getting the decal right is no picnic, but I think a setting solution and solvent would make most decals lie down and behave.

Eduard has made masks for this, although the 1/72 scale line is currently "discontinued." But you can make your own masks. It takes a fair amount of eyeballing, freehand drawing, and cutting to get it right, but once you cut out the shape of the spiral the rest is easy.

First, paint your spinner the color you want the spiral to be (usually just white). Give it plenty of time (perhaps a couple of days) to dry. You don't want your mask to pull up paint.

Now lay out a swatch of masking tape on a clean, flat surface to draw and cut your spiral. You could use a French curve as a drawing aid to get your spiral started. Try it on paper until you get something that looks right before you commit tape, paint, and your spinner to it.

Use a flexible tape — I like Tamiya's thin tape or, even better, Tamiya's tape for curves — and, before you apply it, cut it in segments so it will follow the compound curve of the spinner more easily without buckling.

Burnish the tape down to prevent paint from bleeding under it and paint the spinner. Remove the mask as soon as possible to minimize a ridge at the color edges.

You can touch up with a brush if needed, and you can take some ease from the fact that photos show these spirals were often hand-painted and imperfect.

Of course, that is one more way — hand-paint it with a brush. Lay down a thin line for the first coat, then fill it out from there. Many modelers do just that.

For an F-111, what's the way to B?

Q Back in the mid-1960s, when the F-111 began as the TFX, I flew the Navy version multiple times as an evaluation pilot at NATC Patuxent River. There were only six of them manufactured, and I doubt there's much of a market for a 1/48 scale model (although I have seen a photo of a beautiful 1/72 scale model). It'd be pretty easy to transform an F-111A into an F-111B if I could figure out a novice's way to make the nose much shorter. (I'm pretty new at this modeling game, and I'm trying to model most of the airplanes I've flown in 1/48 scale.) Of course, a better answer for my situation would be to find it in kit form — doubt that'll happen!

– Bob Sallada
Gainesville, Va.

A There have been conversion kits with the nose you want in 1/48 scale, but none currently in production that I could find. In 1/48 scale, there is the old Aurora kit (later reboxed by Monogram). You can find them as collectibles — and they're priced like collectibles, too!

1/35 scale British uniform insignia

Q I've been trying to find decals for 1/35 scale British infantry figures to go with a Cromwell tank. I bought Tamiya figures and really want to add some rank to these guys. I could turn the U.S. decals upside down and add some German shoulder boards, but I would always know. Any suggestions?

– Robert Jenkins
Ramsey, N.J.

A I honestly thought I would have no trouble finding several sources, and if you were looking for Germans or GIs I would have a long list for you. But, surprisingly, all I could find for British uniform insignia in 1/35 scale was from Archer Fine Transfers, www.archertransfers.com. That's it for now, anyway — perhaps readers and manufacturers will let me know what I missed by the next issue.

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Closing Dates: Published 10 times a year. February 2017 closes November 4, March closes December 6, April closes January 10, May closes February 13, July closes April 12, September closes June 9, October closes July 10, November closes August 9, December closes September 8.

COMING EVENTS

IL, CRYSTAL LAKE IPMS Region 5 Contest and the Sixth Annual Northern Illinois Model Contest (NIMCON 6); McHenry County College, 8900 Hwy 14, Crystal Lake; Saturday, May 20, 2017; 9am-5pm; Gold/Silver/Bronze contest rules with special awards for select WWI entries; well lit contest area; huge raffle, large vendor room, food available from WGW Foods. For info and forms visit: www.lakesregionmodelers.com

VA, ROANOKE: 2017 Virginia Shoot-Out sponsored by Roanoke Valley IPMS, Salem Civic Center, 1001 Roanoke Blvd., Salem, VA. August 12, 2017, 9:00am-6:00pm. Over 70 contest categories, "Best-Ofs", mega-raffle, vendors galore. Contact Rocky Sink at 540-580-2023 or snkchevcol@aol.com or Greg Clower at 540-650-1552 or gclower@aol.com or www.rvipms.com for information.

CANADA, BRAMPTON, ONTARIO: Torcan 2017 Model Contest. Century Gardens Recreation Centre, 340 Vodden St. E. Saturday, May 6, 2017, 9:00am-5:00pm. General Admission $5.00, children 12 & under free. Contestant Admission: Adult $15.00 includes 3 models, $2.00 each additional entry. Junior $7.00 includes 3 models, $1.00 each additional entry. Hosted by Peel Scale Modelers. Visit www.TorcanModelShow.com or info@peelscalemodelers.com

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By Mark Hembree

The Flying Pancake: Did it really stack up?

Of all outlandish looking aircraft, those designed for vertical or short takeoffs are leaders in the field of odd looks — and double takes.

The unique profile of Chance Vought's V-173 and XF5U certainly rates in that category. The flat, circular shape earned it the nicknames "Flying Pancake" and "Flying Flapjack."

But that was after those in the know were already calling it the "Zimmer Skimmer," after its designer, aerodynamics engineer Charles Zimmerman.

Working for NASA's predecessor, the National Advisory Committee for Aeronautics (NACA), Zimmerman theorized that he could minimize the drag created by the tips of conventional wings by placing large propellers at the wingtips, and that, by maintaining a uniform airflow over the entire wing surface, such an aircraft could take off and land at exceptionally low speeds. In 1935 he applied for a patent, which was granted in 1938.

At that point he joined Chance Vought, where he built and tested a 1/4 scale model that convinced the U.S. Navy to fund what would become the prototype V-173, a proof-of-concept airframe.

Such an aircraft had special appeal to the Navy, which envisioned something that would perform well on carriers and perhaps other types of ships to counter submarines and kamikaze attacks. Indeed, with its two 16-foot 6-inch, three-bladed propellers up to speed, and with a 25-knot headwind, the V-173 could achieve a zero-roll takeoff — vertical flight. And it could float in for a landing at 20 mph.

U.S. Navy

The V-173 makes its maiden flight on Nov. 23, 1942, with Chance Vought pilot Boone Guyton at the controls.

Chance Vought test pilot Boone Guyton flew the V-173 for the first time in November 1942. He was barely able to steer it back to a landing. But after modifications to the controls and adjustments for excessive vibration, the prototype logged nearly 200 flights. Even Charles Lindbergh took it for a spin, pronouncing it surprisingly easy to handle.

The Navy gave Chance Vought the go-ahead to build the XF5U-1, a larger, much heavier version built for military service. Vibration remained a problem, but performance was promising: Varying sources list top speeds ranging from 388 to 550 mph.

But after the war, with the XF5U project running long and exceeding budget, the advent of the Jet Age finally brought about the end of the Flying Flapjack. The Navy cancelled it in 1947.

The Smithsonian National Air & Space Museum acquired the V-173 in 1960. In 2003 it was transferred to a facility near Dallas, Texas, where the Vought Aircraft Heritage Foundation began a painstaking restoration of the badly deteriorated wood-and-fabric airframe. The aircraft is currently on display in the Frontiers of Flight museum at Dallas' Love Field. **FSM**

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